Prep. [2]

First Term - Algebra

Final Revision

Part 2 - Problems



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Exercises

[A] : Choose The Correct Answer : -

No.	Question	Answer
1	$\sqrt[3]{a^3}$ = ... A) a B) a^2 C) a^3 D) 2 a	A
2	$\sqrt{3}$ ($\sqrt{11}$ + $\sqrt{3}$) = ... A) $3\sqrt{11}+2$ B) $\sqrt{33}+3$ C) $11\sqrt{3}+2$ D) $2\sqrt{11}+3$	B
3	$\sqrt{25} = \sqrt[3]{\ldots\ldots\ldots}$ A) 5 B) 15 C) 125 D) – 5	C
4	$\sqrt[3]{\ldots\ldots\ldots} = 4$ A) 4 B) 16 C) 64 D) 1	C
5	$\sqrt{25} + \sqrt[3]{-27} = \sqrt{\ldots\ldots\ldots}$ A) 8 B) 4 C) 2 D) 5	B
6	$\sqrt[3]{64} = \sqrt{X}$, then 2 X = ... A) 4 B) 8 C) 16 D) 32	D
7	$\sqrt[3]{64} = \sqrt{\ldots\ldots\ldots}$ A) 64 B) 8 C) 16 D) 32	C
8	$\sqrt[3]{27} = \sqrt{X+3}$, then X = ... A) 3 B) 6 C) 9 D) 12	B
9	$\sqrt[3]{64+\ldots\ldots} = 5$ A) 5 B) 61 C) 100 D) 25	B
10	If : $X^3 = 64$, then : $\sqrt{X}$ = ... A) 4 B) – 4 C) 2 D) –2	C
11	$X^2 = 5$, then $(X + \sqrt{5})^2$ = ...or .... A) 0 , 4 B) 0 , 20 C) 0 , 25 D) 0 , 10	B

No.	Question	Answer
12	$\frac{X^3}{y^3} = \frac{8}{27}$, then $(\frac{y}{X})^2 =$ .... A) $\frac{8}{27}$ B) $\frac{2}{3}$ C) $\frac{4}{9}$ D) $\frac{9}{4}$	D
13	$X^2 - X^2 = 60$ and $X + y = 5$, then $X - y =$ .... A) 5 B) 60 C) 300 D) 12	D
14	The solution set of the equation : $X^2 = 2$ in R is .... A) $\{\sqrt{2}\}$ B) $\{-\sqrt{2}\}$ C) $\{2\}$ D) $\{\sqrt{2}, -\sqrt{2}\}$	D
15	The solution set of the equation : $X^2 + 2 = 0$ in R is .... A) $\varnothing$ B) $-\sqrt{3}$ C) $\sqrt{3}$ D) $\pm\sqrt{3}$	A
16	The solution set of the equation : $X^3 + 8 = 0$ in R is .... A) $\{2\}$ B) $\{-2\}$ C) $\{2\sqrt{2}\}$ D) $\{2, -2\}$	B
17	The solution set of the equation : $X^3 + 9 = 8$ in R is .... A) $\{8\}$ B) $\{9\}$ C) $\{3\}$ D) $\{-1\}$	D
18	The S.S of the equation : $(X^2 + 3)(X^2 + 1) = 0$ in R is .... A) $\varnothing$ B) $\{3, 1\}$ C) $\{-3, -1\}$ D) $\{\pm 3, \pm 1\}$	A
19	The S.S of the equation : $(X^2 + 1)(X - 5) = 0$ in R is .... A) $\varnothing$ B) $\{5\}$ C) $\{5, \pm 1\}$ D) $\{\pm 1\}$	B
20	The S.S of the equation : $(X^2 + 3)(X^3 + 1) = 0$ in R is .... A) $\varnothing$ B) $\{1\}$ C) $\{\pm 3, \pm 1\}$ D) $\{-1\}$	D
21	The S.S of the equation : $(X^2 - 1)(X + 5) = 0$ in R is .... A) $\varnothing$ B) $\{-5\}$ C) $\{-5, \pm 1\}$ D) $\{\pm 1\}$	C
22	The S.S of the equation : $X(X^3 - 1) = 0$ in R is .... A) $\varnothing$ B) $\{0, 1\}$ C) $\{0, \pm 1\}$ D) $\{1\}$	B
23	If : $\frac{3}{a+2}$ is a rational number the a $\neq$ .... A) 3 B) 5 C) -2 D) zero	C
24	If $n \in Z_+$, $n < \sqrt{26} < n + 1$, then a = ... A) 25 B) 5 C) 24 D) -5	B

No.	Question	Answer
25	The irrational number in the following numbers is .... A) $\sqrt{\frac{1}{9}}$ B) $\sqrt{\frac{1}{4}}$ C) $\sqrt{3}$ D) $\sqrt[3]{27}$	C
26	The irrational number lies between 2 and 3 is .... A) $\sqrt{10}$ B) $\sqrt{7}$ C) 2.5 D) $\sqrt{3}$	B
27	The area of a square whose side length is $\sqrt{3}$ cm = ... cm^2 A) $4\sqrt{3}$ B) + C) 3 D) 6	C
28	The square whose area is 10 cm^2, its side length is .... cm A) 5 B) -5 C) $\sqrt{10}$ D) $-\sqrt{10}$	C
29	The multiplicative inverse of $\frac{\sqrt{3}}{3}$ is .... A) $\sqrt{3}$ B) 1 C) 3 D) $-\sqrt{3}$	A
30	The multiplicative inverse of $\sqrt{5}$ is .... A) $-\sqrt{5}$ B) $\frac{\sqrt{5}}{5}$ C) $5\sqrt{5}$ D) $\frac{5}{\sqrt{5}}$	B
31	The multiplicative inverse of ($\sqrt{3}+\sqrt{2}$) is .... A) $\sqrt{3}$ B) $\sqrt{2}$ C) $\sqrt{3}+\sqrt{2}$ D) $\sqrt{3}-\sqrt{2}$	D
32	The additive inverse of ($3-2\sqrt{2}$) is .... A) $3+2\sqrt{2}$ B) 3 C) 2 D) $2\sqrt{2}-3$	D
33	$Q \cap Q' =$ .... A) { 0 } B) $\varnothing$ C) R D) Q	B
34	$Q \cup Q' =$ .... A) { 0 } B) $\varnothing$ C) R D) Q	C
35	$R_+ \cup R_- =$ A) R B) Q C) N D) R^*	D
36	$\sqrt[3]{8}$ .... $]-\infty , 4[$ A) $\in$ B) $\notin$ C) $\subset$ D) $\not\subset$	A
37	$5 \in$ .... A) $]5 , \infty[$ B) $]-\infty , 5[$ C) $(3 , 5)$ D) $[-5 , \infty[$	D

No.	Question	Answer
38	R = ……………… A) $R_+ \cup R_-$ B) $R_+ \cap R_-$ C) $]-\infty , \infty[$ D) $Q \cap Q'$	C
39	R_+ = ……………… A) $]0 , \infty[$ B) $]-\infty , 0[$ C) $[0 , \infty[$ D) $]-\infty , 0]$	A
40	R_- = ……………… A) $]0 , \infty[$ B) $]-\infty , 0[$ C) $[0 , \infty[$ D) $]-\infty , 0]$	B
41	The set of none –negative numbers = ……………… A) $]0 , \infty[$ B) $]-\infty , 0[$ C) $[0 , \infty[$ D) $]-\infty , 0]$	C
42	The set of none –positive numbers = ……………… A) $]0 , \infty[$ B) $]-\infty , 0[$ C) $[0 , \infty[$ D) $]-\infty , 0]$	D
43	$[2 , 7] - \{2 , 7\}$ = ……………… A) $\varnothing$ B) $[1 , 6]$ C) $]2 , 7[$ D) $\{0\}$	C
44	$[-2 , 5] - \{-2 , 6\}$ = ……………… A) $]-2 , 5[$ B) $]-2 , 6[$ C) $]-2 , 5]$ D) $[-2 , 5[$	C
45	$]3 , 5[\cup \{3 , 5\}$ = ……………… A) $]3 , 5[$ B) $[3 , 5[$ C) $]3 , 5]$ D) $[3 , 5]$	D
46	$]-2 , 2] \cup \{-2 , 0\}$ = ……………… A) $]-2 , 2[$ B) $[-2 , 2[$ C) $]-2 , 2]$ D) $[-2 , 2]$	B
47	$[1 , 3] \cup [2 , 5[$ = ……………… A) $]1 , 5[$ B) $[1 , 5[$ C) $]1 , 5]$ D) $[1 , 5]$	B
48	$]-\infty , 1] \cup [-4 , \infty[$ = ……………… A) R B) $[-4 , \infty[$ C) $]-\infty , 1]$ D) Q	A
49	$]-1 , 3] \cap [-3 , -1]$ = ……………… A) $\varnothing$ B) $\{-1\}$ C) $\{-3\}$ D) $\{3\}$	B
50	$[1 , 5] \cap]-2 , 3]$ = ……………… A) $\{1 , 3\}$ B) $]1 , 3[$ C) $[1 , 3]$ D) $[1 , 3[$	C
51	$N \cap]1 , 2[$ = ……………… A) $\varnothing$ B) $\{1 , 2\}$ C) $\{1\}$ D) $]1 , 2[$	A

No.	Question	Answer
52	$[3, 7[-]-2, 5] =$ .... A) $]5, 7[$ B) $\{5, 7\}$ C) $]-2, 3[$ D) $[3, 5]$	A
53	The additive neutral (identity) in R is .... A) 0 B) 1 C) 2 D) 3	A
54	The multiplicative neutral (identity) in R is .... A) 0 B) 1 C) 2 D) 3	B
55	If $a \in N$, $b \in Z$ and $c \in R$, then $a + b + c \in$ .... A) N B) Z C) Q D) R	D
56	If $a \in R$ and $b \in R$. then $a - b$ means the sum of the number a and of .... inverse of the number b A) 0 B) B C) Additive D) multiplicative	C
57	The number $(1 - \sqrt{3})(1 + \sqrt{3})$ is a number .... A) Natural B) Rational C) Irrational D) Prime	B
58	The simplest form of the expression : $(\sqrt{3} - 1)^2 (\sqrt{3} + 1)^2$ is .... A) 3 B) 4 C) 13 D) 25	B
59	The multiplicative inverse of $(\sqrt{7} + \sqrt{3})(\sqrt{7} - \sqrt{3})$ is .... A) 4 B) -4 C) $\frac{1}{4}$ D) $-\frac{1}{4}$	C
60	If : $X = \sqrt{5} + \sqrt{3}$, $y = \sqrt{5} - \sqrt{3}$, then $X - y =$ .... A) $2\sqrt{3}$ B) $5\sqrt{3}$ C) $2\sqrt{5}$ D) 2	A
61	If : $X = \sqrt{7} + \sqrt{3}$, $y = \sqrt{7} - \sqrt{3}$, then $(X - y)^3 =$ .... A) Zero B) 24 C) $24\sqrt{3}$ D) 196	C
62	The conjugate number of : $\sqrt{5} + \sqrt{3}$ is .... A) $\sqrt{5} + \sqrt{3}$ B) $\sqrt{5} - \sqrt{3}$ C) $2\sqrt{3}$ D) $2\sqrt{5}$	B
63	The conjugate number of : $\frac{2}{\sqrt{5} - \sqrt{3}} =$ .... A) $\sqrt{5} + \sqrt{3}$ B) $\sqrt{5} - \sqrt{3}$ C) $2\sqrt{3}$ D) $2\sqrt{5}$	B
64	The conjugate number of : $\sqrt{3} - \frac{5}{\sqrt{5}} =$ .... A) $\sqrt{5} + \sqrt{3}$ B) $\sqrt{5} - \sqrt{3}$ C) $2\sqrt{3}$ D) $2\sqrt{5}$	A

No.	Question	Answer
65	If : $\frac{X}{5-\sqrt{5}} = 5 + \sqrt{5}$, then X = ……………… A) 25 B) 20 C) 15 D) 10	B
66	If : $\frac{1}{X} = \sqrt{5} - 2$, then X = ……………… A) $\sqrt{5} - 2$ B) $\sqrt{5} + 2$ C) $\sqrt{5} - 5$ D) 0	B
67	If : $X = \frac{2}{\sqrt{5} - \sqrt{3}}$ and Xy = 2 , then y = ……………… A) $\sqrt{5} + \sqrt{3}$ B) $\sqrt{5} - \sqrt{3}$ C) $2\sqrt{3}$ D) $2\sqrt{5}$	B
68	A rectangle of dimensions ($\sqrt{3} - 1$) , ($\sqrt{3} + 1$) cm. its area is……………… A) 2 B) 4 C) $2\sqrt{3}$ D) $2\sqrt{5}$	A
69	If : $X = \sqrt{3} + 2$, $y = \sqrt{3} - 2$, then (Xy , X + y) = ……………… A) (1 , 1) B) (– 1 , 4) C) (– 1 , 9) D) ($-1 , 2\sqrt{3}$)	D
70	If : $X = \sqrt[3]{3} + 7$, $y = \sqrt[3]{3} - 7$, then $(X + y)^3$ = ……………… A) 3 B) 7 C) 24 D) 64	C
71	$\sqrt[3]{54} + \sqrt[3]{-2}$ = ……………… A) $\sqrt[3]{52}$ B) $\sqrt[3]{2}$ C) $2\sqrt[3]{2}$ D) $4\sqrt[3]{2}$	C
72	$\sqrt[3]{2} + \sqrt[3]{2}$ = ……………… A) $\sqrt[3]{2}$ B) $\sqrt[3]{4}$ C) $\sqrt[3]{8}$ D) $\sqrt[3]{16}$	C
73	$\sqrt[3]{\frac{2}{3}} \times \sqrt[3]{-12}$ = ……………… A) 2 B) – 2 C) 3 D) 5	B
74	$\sqrt[3]{24} + \sqrt[3]{-81} + \sqrt[3]{3}$ = ……………… A) $\sqrt[3]{3}$ B) 0 C) $6\sqrt[3]{3}$ D) $-\sqrt[3]{3}$	B
75	If the side length of a square is L cm. and its area is 30 cm^2, then the area of the square whose side length equals 2 L cm. is ……………… A) 30 B) 60 C) 120 D) 180	C

No.	Question	Answer
76	Volume of a cube whose edge length 2 L cm. is .... cm^3 A) 2 L B) 8 L C) $8\ L^3$ D) L^3	C
77	The lateral area of a cube whose edge length is L cm. = ... cm^2 A) L^2 B) $4L^3$ C) L^3 D) $4L^2$	D
78	The edge length of a cube is 4 cm. , then its total area = ... cm^2. A) 4 B) 64 C) 96 D) 144	C
79	If the edge length of a cube is 5 cm. , then its volume = ... cm^3. A) 5 B) 25 C) 125 D) 325	C
80	The sum of lengths of all edges of a cube is 36 cm. , then its total area equals .... cm^2 A) 3 B) 12 C) 54 D) 36	C
81	If the volume of a cube is 216 cm^3 , then the length of its edge is ...... A) 6 B) 12 C) 24 D) 36	A
82	The edge length of a cube whose volume is 3 cm^3 is ....cm. A) $\sqrt{3}$ 3 1 D) $\sqrt[3]{3}$	D
83	The edge length of a cube whose volume is $2\sqrt{2}$ cm^3 is .... cm A) $\sqrt{2}$ B) 2 C) 8 D) 1.5	A
84	If the volume of a cube is $40\sqrt{5}$ cm^3 , then its edge length is ......cm. A) $\sqrt{5}$ B) $8\sqrt{5}$ C) $2\sqrt{5}$ D) $5\sqrt{2}$	C
85	The volume of a cuboid whose dimensions are : $\sqrt{2}$, $\sqrt{3}$, $\sqrt{6}$ cm is .... cm^3 A) 6 B) 2 C) 3 D) 36	A
86	If a volume of a cube is 27 cm^3, then the total area is .... cm^2 A) 3 B) 9 C) 36 D) 54	D
87	If a volume of a cube is 27 cm^3, then the lateral area is .... cm^2 A) 3 B) 9 C) 36 D) 54	C
88	If a area of one face of a cube is 25 cm^2 , then it's volume = ...cm^3 A) 25 B) 5 C) 125 D) 1	C

No.	Question	Answer
89	Area of the square of side length is 21 cm. = ... cm^2 A) 441 B) 400 C) 525 D) 625	A
90	The volume of a sphere which its diameter 6 cm. = ... cm^3 A) 4π B) 9π C) 36π D) 27π	C
91	A volume of the sphere equals $32\sqrt{3}\ \pi\ cm^3$, its radius length .... A) $\sqrt{3}$ cm B) 3 cm C) $2\sqrt{3}$ cm D) 9 cm	C
92	The radius length of a right circular cylinder whose volume is 40π cm^3 and its height 10 cm. = ... cm. A) 5 B) 3 C) 2 D) 1	C
93	If a volume of a cube is L^3 cm^3, then the total area is .... cm^2 A) $4L^3$ B) $6L^3$ C) $4L^2$ D) $6L^2$	D
94	The S.S. of equation : $\sqrt{2}X = 2$ in R = ... A) $\{\sqrt{2}\}$ B) $\sqrt{2}$ C) $\{2\}$ D) $\{2\sqrt{2}\}$	B
95	The S.S. of equation : $X + \sqrt{2} = \sqrt{8}$ in R = ... A) $\{\sqrt{2}\}$ B) $\sqrt{8}$ C) $\sqrt{6}$ D) $\sqrt{4}$	A
96	The S.S. of the inequality : $0 < x + 5 \le 6$ in $\mathbb{R}$ is .... (a) $]5, 11]$ (b) $]-1, 5]$ (c) $[-5, 1[$ (d) $]-5, 1]$	D
97	The S.S. of the inequality : $-x > 2$ in $\mathbb{R}$ is .... (a) $\{2\}$ (b) $]-\infty, 2[$ (c) $]2, \infty[$ (d) $]-\infty, -2[$	D
98	If $-1 < -x \le 5$, then the S.S. in $\mathbb{R}$ is .... (a) $[-5, 1[$ (b) $[5, -1[$ (c) $]-5, 1]$ (d) $]-5, 1[$	A
99	The S.S. of equation : $\sqrt{2}\,x = 2$ in $\mathbb{R}$ is .... (a) $\{\sqrt{2}\}$ (b) $\sqrt{2}$ (c) $\{2\}$ (d) $\{2\sqrt{2}\}$	B
100	$\{x : x \in \mathbb{R}, x < 1\} =$ .... (a) $0, -1, -2, \cdots$ (b) $]-\infty, 1]$ (c) $]-\infty, 1[$ (d) $]-\infty, 0]$	C
101	If : $x \in \mathbb{R}$, $1 - 7x > \|-8\|$, then $x <$ .... (a) 1 (b) -1 (c) $\frac{9}{7}$ (d) 0	B

No.	Question	Answer
102	If : $2 < x < 5$, then $3x - 1 \in$ .... (a) $]3 , 12[$ (b) $]6 , 14[$ (c) $]5 , 15[$ (d) $]5 , 14[$	D
103	Which of the following represent linear relation ? A) Xy = 2 B) $X^2 = \frac{1}{y}$ C) $\frac{X}{y} = 1$ D) $y = X^2 + 4$	C
104	Which of the following satisfies the relation : 2 X + y = 5 ? A) (– 3 , 3) B) (1 , 3) C) (3 , 1) D) (2 , 2)	B
105	(3 , 2) satisfies the relation .... A) Y + X = 5 B) Y – X = 5 C) 3 Y – X = 2 D) 2 X + Y = 1	A
106	(3 , 2) does not satisfy the relation .... A) Y + X = 5 B) X – Y = 1 C) Y + X = 7 D) 3 Y – X = 3	C
107	Value of b where (– 3 , 2) satisfies the relation : 3 X + by = 1 is A) 3 B) 5 C) 4 D) 0	B
108	If : (a , 1) satisfies the relation : 2 X + 3y = 7 , then a = ... A) 2 B) – 2 C) 4 D) 3	A
109	If : (k , 2 k) satisfies the relation : 3 X + 2 y = 14 , then k = ... A) 2 B) - 2 C) 7 D) 0	A
110	The opposite table shows the relation between x and y , which is .... (a) $y = x + 4$ (b) $y = x + 1$ (c) $y = 2x - 1$ (d) $y = 3x - 2$ Table: x: 1, 2, 3, 4, 5 ; y: 1, 3, 5, 7, 9	C
111	The slope of the straight line parallel to the X – axis is .... A) Positive B) Negative C) Zero D) Undefined	C
112	The slope of the straight line parallel to the Y – axis is .... A) Positive B) Negative C) Zero D) Undefined	D
113	The slope of horizontal line is .... A) 1 B) Zero C) - 1 D) Undefined	B
114	Slope of straight line passes through (- 2 , 3) and (2 , 3) is .... A) 2 B) 1 C) Zero D) Undefined	C

Table for question 110:

x	1	2	3	4	5
y	1	3	5	7	9

No.	Question	Answer
115	Slope of straight line passes through (- 3 , 1) and (2 , 5) is ………… A) $\frac{4}{5}$ B) $-\frac{6}{1}$ C) $\frac{5}{4}$ D) $-\frac{1}{6}$	A
116	Slope of straight line passes through (3 , y) and (5 , – 2) is – 3 , then y = ………… A) 2 B) 4 C) 6 D) – 30	B
117	If the Slope of straight line a X + b y + 1 = 0 is undefined , then ………… A) a = b B) a = zero C) b = zero D) a = – b	C
118	Relation : X – 5 = 0 is represented by a st. line whose slope is………… A) 0 B) – 5 C) 5 D) Undefined	D
119	**In the opposite figure :** The slope of the straight line L is ……… (a) positive. (b) negative. (c) zero. (d) undefined.	C
120	The slope of the straight line L in the opposite figure is ………. (a) positive. (b) negative. (c) zero. (d) undefined.	B
121	**In the opposite figure :** The slope of the straight line L is ……… (a) zero. (b) undefined. (c) 1 (d) $\frac{1}{2}$	C
122	The mean of the values : 2 , 5 , 4 , 5 is …………… (a) 4 (b) 5 (c) 16 (d) 8	A

No.	Question	Answer
123	If the arithmetic mean of the values : 27 , 8 , 16 , 24 , 6 and k is 14 , then k = ……… (a) 3 (b) 6 (c) 27 (d) 84	A
124	If the mean of marks of 5 pupils is 20 , then the total of their marks = ……… marks. (a) 4 (b) 15 (c) 25 (d) 100	D
125	The lowest limit of a set is 4 and the other limit is 8 , then its centre is ……… (a) 2 (b) 4 (c) 6 (d) 8	C
126	If the lowest boundary of a set is 10 and the upper boundary is X and its centre is 15, then X = ……… (a) 10 (b) 15 (c) 20 (d) 30	C
127	If the lower limit of a set is 18 and its centre is 20 , then its length is ……… (a) 2 (b) 19 (c) 22 (d) 4	D
128	The arithmetic mean of the values : 3 – a , 5 , 1 , 4 , 2 + a equals ……… (a) 1 (b) 2 (c) 3 (d) 15	C
129	The mean of the values : 2 – a , 4 , 1 , 5 , 3 + a is ……… (a) 1 (b) 2 (c) 3 (d) 15	C
130	The order of the median of the set of values : 8 , 4 , 7 , 6 , 5 is ……… (a) 7 (b) 6 (c) 3 (d) 5	C
131	If the order of the median of a set of values is the fourth , then the number of these values is ……… (a) 3 (b) 5 (c) 7 (d) 9	C
132	If the median of the set of the values : 27 , 45 , 19 , 24 and 28 is X , then X = ……… (a) 24 (b) 27 (c) 28 (d) 45	B
133	The median of the values : 1 , 2 , 5 , 3 and 4 is ……… (a) 3 (b) 4 (c) 5 (d) 2	A

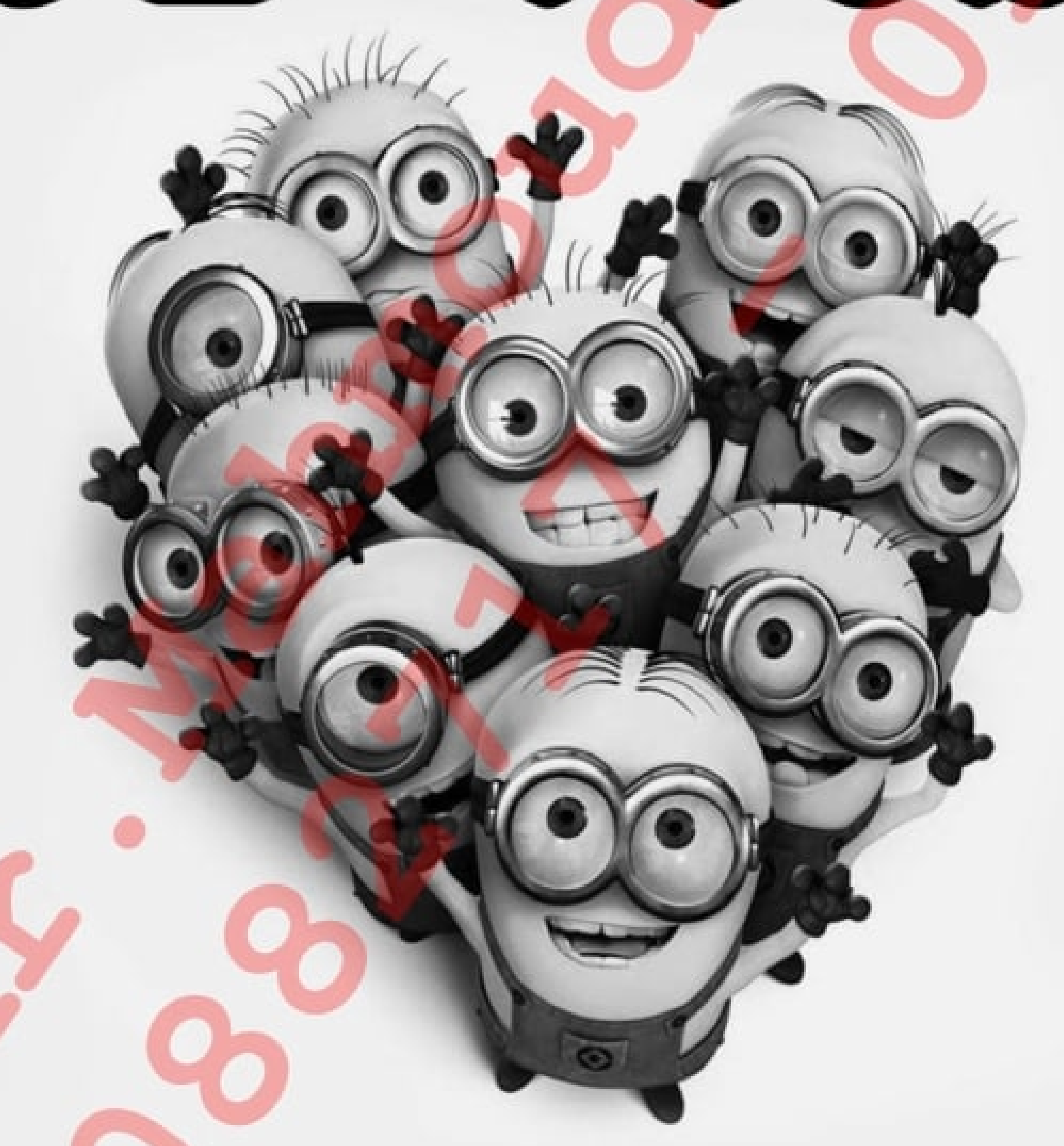
134	The median of the set of the values : 3 , 6 , 6 , 7 , 9 , 11 , 13 , 14 , 15 and 20 is ………. (a) 9 (b) 10 (c) 11 (d) 20	B
135	The mode of the values : 3 , 5 , 3 , 6 , 3 and 8 is ………. (a) 3 (b) 5 (c) 6 (d) 8	A
136	If the mode of the set of the values : 4 , 11 , 8 , 2 x is 4 , then x = …………… (a) 2 (b) 4 (c) 6 (d) 8	A
137	The mode of the values : 15 , 9 , $x + 1$, 9 , 15 is 9 , then x = …………… (a) 9 (b) 14 (c) 10 (d) 8	D
138	The mode of the set of values : 5 , 9 , 5 , $x - 2$, 9 is 9 , then x = …………… (a) 5 (b) 57 (c) 9 (d) 11	D

Prep. [2]

First Term - Geometry

Final Revision

Part 2 - Problems



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Exercises

[A] : Choose The Correct Answer : -

1	The medians of the triangle intersect at ……… point. (a) 1 (b) 2 (c) 3 (d) 4	A
2	The number of medians in the right-angled triangle = ………… (a) 3 (b) 2 (c) 1 (d) 0	A
3	The point of intersection of the medians in the triangle divides each of them by the ratio ……… from the vertex. (a) 1 : 3 (b) 3 : 1 (c) 2 : 1 (d) 1 : 2	C
4	The point of concurrence of the medians of the triangle divides each median in the ratio of ……… from the base. (a) 1 : 2 (b) 1 : 3 (c) 2 : 1 (d) 3 : 1	A
5	If $\overline{AD}$ is a median of triangle ABC , and M is the point of intersection of the medians , then AM = ……… AD (a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) $\frac{1}{2}$ (d) $\frac{1}{4}$	B
6	$\overline{AD}$ is a median in Δ ABC , M is the point of intersection of its medians , then AM = ……… MD (a) 2 (b) $\frac{1}{2}$ (c) 3 (d) $\frac{1}{3}$	A
7	If $\overline{XE}$ is a median in Δ XYZ , M is the point of intersection of its medians , then EM = ……… XE (a) $\frac{1}{2}$ (b) 2 (c) $\frac{1}{3}$ (d) $\frac{2}{3}$	C
8	In Δ ABC : If AD = 6 cm. is a median and M is a point of concurrent , then MA = ……… cm. (a) 6 cm. (b) 3 cm. (c) 2 cm. (d) 4 cm.	D
9	The length of the hypotenous of the right-angled triangle = ……… the length of the median which drawn from the vertex of the right-angle. (a) half (b) twice (c) third (d) quarter	B

No.	Question	Answer
10	If $\overline{AD}$ is a median of ΔABC , M is the point of intersection of its medians and AM = 6 cm. , then AD = ... (a) 12 cm. (b) 6 cm. (c) 18 cm. (d) 9 cm.	D
11	oose the correct answer : **In the opposite figure :** $\overline{AD}$ is a median in ΔABC , M is the point of intersection of the medians , MD = 2 cm. , then AD = ... cm. (a) 2 (b) 4 (c) 6 (d) 8	C
12	In the right-angled triangle , the length of the median from the vertex of the right angle equals .... the length of hypotenuse. (a) half (b) twice (c) third (d) forth	A
13	In ΔABC which is right at B , if AC = 20 cm. , then the length of the median of the triangle drawn from B equals .... (a) 10 cm. (b) 8 cm. (c) 6 cm. (d) 5 cm.	A
14	The length of the side opposite to the angle of measure 30° in the right-angled .... the length of the hypotenuse. (a) twice (b) half (c) square (d) equals	B
15	Triangle ABC : If m (∠ A) = 30° , m (∠ B) = 90° , then BC = ... (a) $\frac{1}{2}$ AB (b) $\frac{1}{2}$ AC (c) 2 AB (d) 2 AC	B
16	In ΔABC if : m (∠ B) = 90° and m (∠ A) = 60° , then AC = ... AB (a) 2 (b) = (c) $\frac{1}{2}$ (d) $\frac{1}{3}$	A
17	In ΔABC : m (∠ A) = 30° , m (∠ B) = 90° , AC = 10 cm. , then BC = ... cm. (a) 20 (b) 15 (c) 10 (d) 5	D
18	In the rectangle ACBD , if AC = 10 cm. , then BD = ... (a) 5 (b) 10 (c) 15 (d) 20	B
19	In any isosceles triangle , the type of the base angles is .... (a) acute. (b) right. (c) obtuse. (d) reflex.	A
20	The base angles of the isosceles triangle are .... (a) congruent. (b) alternate. (c) corresponding. (d) supplementary.	A

No.	Question	Answer
21	If measure of one of the two base angles of the isosceles triangle equals $40°$ then the measure of the vertex angle = ……………° (a) 40 (b) 100 (c) 80 (d) 50	B
22	In Δ ABC : AB = AC , m ($\angle$ B) = $50°$, then m ($\angle$ A) = ……………° (a) 65 (b) 80 (c) 50 (d) 100	B
23	In the isosceles triangle , if the measure of one of the two base angle is $70°$, then the measure of its vertex angle is ……… (a) $70°$ (b) $110°$ (c) $20°$ (d) $40°$	D
24	In a triangle ABC : If AB = AC and m ($\angle$ A) = $40°$, then m ($\angle$ C) = ……… (a) $40°$ (b) $70°$ (c) $140°$ (d) $50°$	B
25	If the measure of an angle of the isosceles triangle is $100°$, then the measure of one of the other angles = ……… (a) $50°$ (b) $80°$ (c) $40°$ (d) $100°$	C
26	The triangle whose sides lengths are 2 cm. , $(X + 1)$ cm and 5 cm. becomes an isosceles triangle when X = ……… cm. (a) 1 (b) 2 (c) 3 (d) 4	D
27	The triangle whose sides lengths are 3 cm. , $(X + 5)$ and 9 becomes an isosceles if X = ……… cm. (a) 3 (b) 4 (c) 5 (d) 6	B
28	**In the opposite figure :** ABC is a triangle in which : m ($\angle$ B) = m ($\angle$ C) , then X = ……… (a) 1 (b) 2 (c) 3 (d) 4 [Figure: A, B, C; AC = $X+1$, AB = $2X-1$, CB = $2X$]	B
29	ABCD is a parallelogram : DE = DC , m ($\angle$ A) = $50°$, then m ($\angle$ EDC) = ……… (a) $50°$ (b) $60°$ (c) $70°$ (d) $80°$ [Figure: D, A, C, E, B; $50°$]	D
30	In Δ ABC : if AB = AC and m ($\angle$ A) = $60°$, if its perimeter is 18 cm. , then BC = ……… cm. (a) 18 (b) 6 (c) 3 (d) 60	B

No.	Question	Answer
31	Δ ABC , AB = AC , D is the midpoint of $\overline{BC}$, then $\overline{AD}$ is ………. (a) median. (b) altitude. (c) bisector of the vertex angle. (d) all the previous.	D
32	The measure of exterior angle of an equilateral triangle = ………. (a) 30° (b) 60° (c) 120° (d) 180°	C
33	In Δ XYZ : if XY = XZ , then the exterior angle at the vertex Z is ………. (a) acute. (b) obtuse. (c) right. (d) reflex.	B
34	The axis of symmetry of a line segment is the straight line which is ………. (a) Perpendicular to it. (b) its bisector. (c) parallel to it. (d) the perpendicular bisector.	D
35	If A $\in$ the axis of symmetry of $\overline{BC}$, then $\overline{AB}$ ………. $\overline{AC}$ (a) $\perp$ (b) $\equiv$ (c) // (d) =	B
36	The number of axis of symmetry in the scalene triangle is ………. (a) 1 (b) zero (c) 3 (d) 4	B
37	The number of axes of symmetry in the isosceles triangle is ………. (a) 1 (b) 2 (c) 3 (d) zero	A
38	The equilateral triangle has ………. axes of symmetry. (a) one (b) two (c) three (d) otherwise	C
39	The triangle which has no axes of symmetry is ………. triangles. (a) scalene (b) isosceles (c) equilateral (d) otherwise	A
40	If Δ ABC has one axes of symmetry and m ($\angle$ ABC) = 140° , then m ($\angle$ A) = ………. (a) 30° (b) 20° (c) 40° (d) 60°	B
41	Δ ABC in which m ($\angle$ A) = m ($\angle$ B) = 65° , then it has …………… axis (axes) of symmetry. (a) 1 (b) 2 (c) 3 (d) zero	A
42	The quadrilateral ABCD in which $\overleftrightarrow{BD}$ is an axis of symmetry of $\overline{AC}$ may by ………. (a) a rhombus (b) a rectangle (c) a parallelogram (d) a trapezium	A

No.	Question	Answer
43	In Δ ABC , AB > AC , then m ($\angle$ C) .... m ($\angle$ B) (a) < (b) > (c) = (d) ≤	B
44	In Δ ABC , AB > AC , m ($\angle$ C) = 70° , then m ($\angle$ B) may be .... (a) 70° (b) 50° (c) 80° (d) 75°	B
45	In Δ ABC : AB = AC , m ($\angle$ B) = 65° , then : AC .... BC (a) < (b) > (c) = (d) ≤	B
46	In Δ ABC : If AB = 9 cm. , BC = 6 cm. , AC = 7 cm. , then the smallest angle is .... (a) $\angle$ BAC (b) $\angle$ ABC (c) $\angle$ ACB (d) $\angle$ BCA	A
47	Δ XYZ , m ($\angle$ X) = 60° , m ($\angle$ Y) = 40° , then XZ .... XY (a) < (b) > (c) = (d) nothing.	A
48	Δ ABC , m ($\angle$ B) = 90° , then AB .... AC (a) > (b) = (c) < (d) ≥	C
49	In Δ XYZ : If m ($\angle$ X) = 30° and m ($\angle$ Y) = 80° , then .... (a) XY < XZ (b) XY > XZ (c) XY = XZ (d) XY < YZ	A
50	The triangle in which the measure of two angles are 74° and 53° is .... triangle. (a) a right-angled (b) an isosceles (c) an equilateral (d) a scalene	B
51	In Δ ABC if : m ($\angle$ B) = 60° and m ($\angle$ C) = 50° , then the shortest side in triangle ABC is .... (a) $\overline{AC}$ (b) $\overleftrightarrow{BC}$ (c) $\overline{BC}$ (d) $\overline{AB}$	D
52	In the triangle ABC , if m ($\angle$ B) = 90° , then the greatest side in length is .... (a) $\overline{AB}$ (b) $\overline{BC}$ (c) $\overline{AC}$ (d) $\overline{XY}$	C
53	The triangle ABC is obtuse-angled triangle at B , then the longest side is .... (a) AB (b) BC (c) AC (d) AD	C
54	Δ XYZ is right-angled at Y , then XZ .... YZ (a) = (b) > (c) ≤ (d) <	B

No.	Question	Answer
55	In Δ ABC : m (∠ B) + m (∠ C) = 3 m (∠ A) , then m (∠ A) = ……………° (a) 30 (b) 60 (c) 45 (d) 90	C
56	The sum of lengths of any two sides in any triangle ……… the length of the third side. (a) is less than (b) is greater than (c) equals (d) otherwise	B
57	If the lengths of two sides in an isosceles triangle are 2 cm. and 5 cm. , then the length of the third side is …………… cm. (a) 2 (b) 3 (c) 5 (d) 7	C
58	Δ ABC , AB = 2 cm. , BC = 7 cm. , then AC may equal ……… (a) 2 cm. (b) 5 cm. (c) 9 cm. (d) 8 cm.	D
59	The lengths of two sides in a triangle are 4 cm. and 9 cm. and it has on axis of symmetry , then the length of third side is ……… (a) 4 cm. (b) 5 cm. (c) 9 cm. (d) 13 cm.	C
60	In Δ ABC if : AB = 3 cm. and BC = 5 cm. , then AC ∈ ……… (a)]3 , 8] (b) [2 , 8] (c)]2 , 8 [(d)]2 , 5 [	C
61	Which of the following can be sides to draw the triangle ……… (a) 5 cm. , 6 cm. , 12 cm. (b) 5 cm. , 6 cm. , 11 cm. (c) 5 cm. , 6 cm. , 4 cm. (d) 4 cm. , 6 cm. , 10 cm.	C
62	How many different triangles can be formed with sides of lengths a whole number of cm. and each with perimeter 7 cm. ? (a) 1 (b) 2 (c) 3 (d) 4	B
63	If the length of one side of a triangle is 5 cm. , then which of the following could be the lengths of the other two sides ? (a) 2 cm. and 3 cm. (b) 7 cm. and 2 cm. (c) 2 cm. and 2 cm. (d) 4 cm. and 6 cm.	D
64	In the triangle ABC , AC ……… (AB – BC) (a) $>$ (b) $\geq$ (c) $\leq$ (d) $<$	A

Answer the fillowing questions:

❖ Choose the correct answer from the given ones:

1) If The radius lengthof a sphere is 6cm. then its volume is...........

(a) $6\pi\ cm^3$ (b) $36\pi\ cm^3$ (c) $72\pi\ cm^3$ (d) $288\pi\ cm^3$

2) If The lowest boundary of a set is 10 and the upper boundary is x and its centre is 15, then x =........................

(a) 10 (b) 15 (c) 20 (d) 30

3) $(2\sqrt[3]{2})^3$ = ...

(a) 4 (b) 8 (c) 16 (d) 40

4) The median of the values :34 , 23 , 25 , 40 , 22 ,4 is................

(a) 22 (b) 23 (c) 24 (d) 25

5) If The arithmetic mean of the values: 27 , 8 , 16 , 24 , 6 , k is 14 , then k =........................

(a) 3 (b)6 (c) 27 (d) 84

6) If The volume of a cube is $27\ cm^3$. , then the area of one of its faces is ....

(a) $3\ cm^2$ (b) $9\ cm^2$ (c) $36cm^2$ (d) $54\ cm^2$

7) If The mode of the set of value: 4 , 11 , 8 , 2 , x is 4 , then x=.......

(a) 2 (b) 4 (c) 6 (d) 8

8) If The arithmetic mean of the set of values: 18 , 23 , 29 , 2k −1,k is 18 , then k=.......................

(a) 1 (b) 7 (c) 29 (d) 90

9) If The lowest limit of a set is 4 and the upper limit is 8 , then its centre is ....

(a) 2 (b) 4 (c) 6 (d) 8

10) If : $\frac{3}{4}$ The volume of a sphere is 8 π cm^3 . , then its radius length is.......................

(a) 64 (b) 8 (c) 4 (d) 2

11) $\sqrt{3\frac{3}{8}} = \sqrt{\frac{\cdots\cdots}{\cdots\cdots}}$

(a) $\frac{3}{8}$ (b) $\frac{8}{3}$ (c) $\frac{27}{8}$ (d) $\frac{729}{64}$

12) IF : $x = \sqrt{7} + \sqrt{2}$ and $y = \sqrt{7} - \sqrt{2}$, then $x - y =$................

(a) $7\sqrt{2}$ (b) $2\sqrt{2}$ (c) $\sqrt{41}$ (d) $2\sqrt{2}$

13) $\sqrt{3}\,(\sqrt{11} + \sqrt{3}\,)$ =........................

(a) $3\sqrt{11} + 2$ (b) $\sqrt{33}$ +3 (c) $11\sqrt{3} + 2$ (d) $2\sqrt{11}$ +3

14) If the order of the median of a set of values is the fourth , then number of values is....................

(a) 3 (b) 5 (c)7 (d) 9

15) If The mode of the set of values : 5 , 9 , 5 , $x - 2$, 9 is 9, then x =....................

(a) 5 (b) 57 (c) 9 (d) 11

16) The number $(1 - \sqrt{3}\,)\,(1 + \sqrt{3}\,)$ is a .... number

(a) natural (b) rational (c)irrational (d) prime

17) If the beginning of a set is 18 and its centre is 20 , then its length is ....

(a) 2 (b) 4 (c) 9 (d) 10

18) $]-1, 3] \cap [-3 , -1]$ equals ....

(a) $\emptyset$ (b) $\{-3\}$ (c) $\{-1\}$ (d) $\{3\}$

19) The S.S of the equation: $x^2 + 3 = 0$ in $\mathbb{R}$ is = ...

(a) $\emptyset$ (b) $\{-\sqrt{3}\}$ (c) $\{\sqrt{3}\}$ (d) $\{\pm\sqrt{3}\}$

20) The simplest form of the expression : $(\sqrt{3}-1)^2(\sqrt{3}+1)^2$ is ....

(a) $2(\sqrt{3}-1)$ (b) $(\sqrt{3}+1)^2$ (c) 4 (d) 13

21) $\mathbb{R}$ = ...

(a) $\mathbb{R}_+ \cup \mathbb{R}_-$ (b) $\mathbb{Q} \cap \acute{\mathbb{Q}}$ (c) $]-\infty, \infty]$ (d) $\mathbb{R}_+ \cap \mathbb{R}_-$

22) The multiplicative inverse of the number $\sqrt{5}$ is ....

(a) $\frac{5}{\sqrt{5}}$ (b) $-\sqrt{5}$ (c) $\frac{\sqrt{5}}{5}$ (d) $5\sqrt{5}$

22) The order of the median of a set of values :8 , 4 , 7 , 6 , 5 is..........

(a) 7 (b) 6 (c) 3 (d) 5

23) IF : $x = \sqrt{3} + 2$ and $y = \sqrt{3} - \sqrt{2}$, then $(x\,y , x + y)$ =................

(a) $(-1 , 2\sqrt{3})$ (b) $(1 , 2\sqrt{3})$

(c) $(5 , 2\sqrt{3})$ (d) $(-1 , 4)$

24) If : $(2 , -5)$ satisfies the relation :

$3x - y + c = 0$, then c =...................

(a) 11 (b) 1 (c) -11 (d) -1

25) $]-3, 5\,] \cap [0\,, 3\,[$ =..................

(a) $[0\,, 3\,]$ (b) $[0\,, 3\,[$ (c) $]-3\,, 0\,[$ (d) $[3\,, 5\,[$

26) (3 , 2) satisfies the relation.............

(a) $y + x = 5$ (b) $y - x = 5$

(c) $3y + x = 2$ (d) $2x + y = 1$

27) IF : $x = \sqrt{7} + \sqrt{3}$, $y = \sqrt{7} - \sqrt{3}$, then $x\,y =$................

(a) 4 (b) 10 (c) 40 (d) 58

28) If the order of the median of a set of values is the fourth , then number of these values is....................

(a) 3 (b) 5 (c) 7 (d) 9

29) $\frac{1}{2}\sqrt{20} + 10\sqrt{\frac{1}{5}} =$..........

(a) $3\sqrt{5}$ (b) $4\sqrt{5}$ (c) 5 (d) 12

29) The median of the values :34 , 23 , 25 , 40 , 22 ,14 is................

(a) 22 (b) 33 (c) 24 (d) 25

30) The S.S of the equation: $x^3 + 27 = 0$ in R = ...

(a) {3} (b) $\{-3\}$ (c) $\{3\sqrt{3}\}$ (d) $\{3\sqrt{3}, -3\sqrt{3}\}$

31) IF : $x = \sqrt{5} + \sqrt{2}$, $y = \sqrt{5} - \sqrt{2}$, then $x - y =$................

(a) $2\sqrt{2}$ (b) $5\sqrt{2}$ (c) $2\sqrt{5}$ (d) 3

32) If : $-2\,x > -6$, then $x \in$.....................

(a) $]-\infty, 3\,[$ (b) $]3\,, \infty\,[$ (c) $]-2\,, -6\,[$ (d) $]1\,, 3\,[$

33) The lateral surface area of right circular cylinder =...........

(a) πrh (b) $4\pi r^2$ (c) $\pi r^2 h$ (d) $2\pi rh$

34) If : $\frac{3}{a+2}$ is a rational number then a ≠.................

(a) 3 (b) 5 (c) −2 (d) zero

35) The mean of the values :7 , 15 , 19 , 14 and 15 is............

(a) 14 (b) 15 (c) 16 (d) 17

36) The solution set for the equation: $x^3 + 9 = 8$ in R is...........

(a) {8} (b) {9} (c) {3} (d) {−1}

37) The multiplicative inverse of $\frac{\sqrt{3}}{6}$ is.................

(a) $\frac{-\sqrt{3}}{6}$ (b) $6\sqrt{3}$ (c) $2\sqrt{3}$ (d) $-2\sqrt{3}$

38) The mode of the values: 2, 5 , 3 , 6 , 3 and 8 is...........

(a) 3 (b) 5 (c) 6 (d) 8

39) [1 ,5] ∩]−2, 3]=......................

(a) {1 , 3} (b)]1 , 3 [(c)[1 , 3] (d) [1 , 3 [

40) The arithmetic mean of the values: 3 − a , 5 ,1 , 4 , 2 + a equals :.......................

(a) 1 (b) 2 (c) 3 (d) 15

41) [2 ,7] − {2 ,7} = ...

(a) [1 ,6] (b) Ø (c)]2 , 7 [(d) [2 , 7]

42) The radius length of a right circular cylinder whose volume is 40 π cm^3 and its height 10 cm=..................... cm

(a) 5 (b) 3 (c) 2 (d) 1

43) If : (-1 , 5) satisfies the relation : $3x + ky = 7$, then k=.............

(a) -2 (b) 8 (c) $\frac{4}{5}$ (d) 2

44) Let A (3 , -5) , B(5 ,-1),then the slope of AB =.....................

(a) $\frac{-1}{3}$ (b)-3 (c) 3 (d) $\frac{1}{3}$

45) If the mean of the ages of 5 students is 15 years , then the total of their ages is ....years.

(a) 75 (b) 3 (c) 50 (d)25

46) If The mode of the value : 5 , 7 , 21 , 7 , 10,7 is =......

(a) 7 (b) 6 (c) 5 (d) 21

47) $\sqrt[3]{(-8)^2}$ =..........................

(a) 2 (b) -2 (c) 4 (d) -4

48) The irrational number lies between 3 and 4 is ....

(a) 3.5 (b) $\frac{1}{8}$ (c) $\sqrt{20}$ (d) $\sqrt{13}$

49) Which of the following ordered pairs satisfies the relation: $2x + y = 5$?

(a) $(-3 , 3)$ (b) (1 , 3) (c) (3 , 1) (d) (2 , 2)

50) The median of the set of values :15 , 22 , 9 , 11 and 33 is...........

(a) 9 (b) 15 (c) 18 (d) 90

51) The S.S of the inequality: $-x > 3$ in R is...................

(a) {3} (b) $]3 , \infty[$ (c) $]-\infty , 3[$ (d) $]-\infty , -5[$

52) If : (2m , m)satisfies the relation : $2x + 3y = 35$, then m =..........

(a) 7 (b) 5 (c) 14 (d) 10

53) The edge length of a cube whose volume is 3 cm^3.=..........cm

(a) $\sqrt{3}$ (b) 3 (c) -3 (d) $\sqrt[3]{3}$

54) The S.S of the equation: $\sqrt{2}\,x = 2$ in ℝ is = ...

(a) $\{\sqrt{2}\}$ (b) $\{2\}$ (c) $\sqrt{2}$ (d) $\{2\sqrt{2}\}$

55) The slope of the straight line parallel to y-axis is ....

(a) *positive* (b) negative (c) zero (d) undefined

32) The solution set for the equation: $x^2 = 2$ in ℝ is= ....

(a) $\{\sqrt{2}\}$ (b) $\{-\sqrt{2}\}$ (c) $\{2\}$ (d) $\{\sqrt{2}, -\sqrt{2}\}$

56) The cube whose volume is 8 cm^3.then its total area =.................

(a) 16 (b) 24 (c) 96 (d) 4

57) The slope of the straight line passes through (-3 , 1) and (2 , 5) =.......................

(a) $\frac{4}{5}$ (b) $-\frac{6}{1}$ (c) $\frac{5}{4}$ (d) $-\frac{1}{6}$

58) $\sqrt{8} - \sqrt{2}$ =.......................

(a) $\sqrt{2}$ (b) 2 (c) $\sqrt{6}$ (d) 4

59) If The lowest boundary of a set is 10 and the upper boundary is x and its centre is 15, then x ....

(a) 10 (b) 15 (c) 20 (d) 30

60) The arithmetic mean of the values: 9 , 6 ,5 , 14 , k is 7 ,then k=..............

(a) 1 (b) 5 (c) 34 (d) 35

61) The order of the median of a set of values 4 , 5 , 6 , 7 , 8 is............

(a) third (b) fourth (c) fifth (d) sixth

62) If The radius lengthof a sphere is 3 cm. then its volume is...........

(a) $4 \pi \ cm^3$ (b) $9 \pi \ cm^3$ (c) $27 \pi \ cm^3$ (d) $36 \pi \ cm^3$

63) The multiplicative inverse of the number $\sqrt{7}$ is..................

(a) $-\sqrt{7}$ (b) $\frac{-1}{\sqrt{7}}$ (c) $\frac{\sqrt{7}}{7}$ (d) $\frac{7}{\sqrt{7}}$

64) The S.S of the inequality: $-1 < x+3 <$ in $\mathbb{R}$ is....................

(a) $[-4, 0]$ (b) $[2, 6]$ (c) $]6, 6[$ (d) $]-4, 0[$

65) The order of the median of a sets of values 4 , 7 , 8 , 6 , 5 is..........

(a) the third (b)the fourth (c)the fifth (d) the second

66) The mode of the sets of value : 14 , 11 , 10 , 11 , 14,15 , 11 is....................

(a) 14 (b) 11 (c) 15 (d) 10

67) The volume of a sphere which is diameter 6 cm. =.........................

(a) 4π (b) 9π (c) 27π (d) 36π

68) The volume of a sphere equals $32\sqrt{3} \ \pi \ cm^3$, then its radius length.........................

(a) $\sqrt{3}cm$ (b) 3 cm (c) $2\sqrt{3}$ cm (d) 9cm

69) The value of b where $(-3, 2)$ satisfies the relation: $3x + by = 1$ is.....................

(a) 3 (b) 5 (c) 4 (d) 0

70) The volume of a cube is $40\sqrt{5}cm^3$, then its edge length is............cm.

(a) $\sqrt{5}$ (b) $8\sqrt{5}$ (c) $2\sqrt{5}$ (d) $5\sqrt{2}$

71) If : (a , 1)satisfies the relation : $2x+3y=7$, then a =..........

(a) 2 (b) -2 (c) 4 (d) 3

72) The median of the values :2 , 8 , 6 , 4 and 5 is...............

(a) 2 (b) 4 (c) 6 (d) 5

73) $\sqrt[3]{24}+\sqrt[3]{-81}+\sqrt[3]{3}=$..................

(a) $\sqrt[3]{3}$ (b) 0 (c) $6\sqrt[3]{3}$ (d) $-\sqrt[3]{3}$

74) $|\sqrt[3]{-125}|=\sqrt{........}$

(a) -5 (b) 5 (c) 25 (d) -25

75) $\sqrt{9}+\sqrt[3]{-8}=$....................

(a) 1 (b) 5 (c) 6 (d) $-\sqrt{3}$

76) The S.S of the inequality: $-x>5$ is..................

(a) {-5} (b)]5 , ∞ [(c)]− ∞ , 5 [(d)]− ∞ , −5 [

77) [3, 6]∩[4 ,7]=................

(a) [3 ,7] (b)]4 , 6 [(c) [4 , 6 [(d{4, 6}

78) The mean of the values :7 , 7 , 5 , 3 and 6 is............

(a) 7 (b) 5.6 (c) 6 (d)28

79) The volume of a cube is 27 cm^3. , then its lateral area...........cm^2.

(a) 9 (b) 27 (c)36 (d) 5

80) $\sqrt{25}=\sqrt[3]{\ldots\ldots\ldots\ldots\ldots}$

(a) 5(b) 15 (c)125 (d) −5

81) The multiplicative inverse of the number $\sqrt{3}$ is ....

(a) 3 (b) $\frac{1}{3}$ (c) $-\sqrt{3}$ (d) $\frac{\sqrt{3}}{3}$

82) The median of the values :11 , 10 , 12 , 9,19 is...............

(a) 9 (b) 10 (c) 11 (d) 19

81) The multiplicative inverse of the number $\sqrt{3}$ is ……………..

(a) 3 (b) $\frac{1}{3}$ (c) $-\sqrt{3}$ (d) $\frac{\sqrt{3}}{3}$

82) The median of the values :11 , 10 , 12 , 9, 19 is…………….

(a) 9 (b) 10 (c) 11 (d) 19

83) The irrational number lies between 2 and 3 is ……………..

(a) $\sqrt{10}$ (b) $\sqrt{7}$ (c) 2.5 (d) $\sqrt{3}$

33)IF : $x^3 + 9 = 1$ where $x \in \mathbb{R}$, then x =…………..

(a) -8 (b) -2 (c) 2 (d) 8

84) If : (2k , k)satisfies: $2x+3y = 35$, then k =……….

(a) 7 (b) -7 (c) 5 (d) -5

85) The volume of a sphere whose its diameter 6 cm^3 =……………

(a) 228 (b) 12π (c) 36π (d) 288π

86) $[2, 7] - \{2, 7\}$ = ……………………

(a) $[2, 6]$ (b) $\emptyset$ (c) $]2, 7[$ (d) $\{0\}$

Answer the following questions :-

(1) Choose the correct answer :

1) Each of the two base angles in a triangle that has one axis of symmetry is .... angle

a) a straight b) an obtuse c) a right d) an acute

2) If the ratio between the length of each side of a triangle and its perimeter is 1 : 3 , then the number of axis of symmetry of this triangle is ....

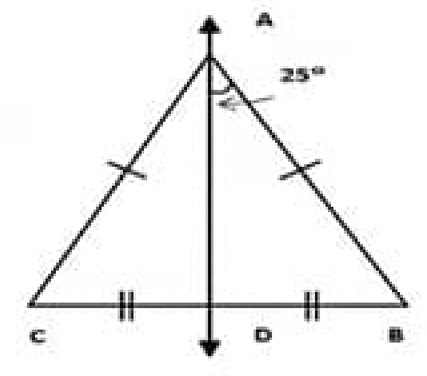
a) zero b) 1 c) 2 d) 3

3) ABC is a right-angled triangle at B , $\overline{BD}$ is a median in it and BD = 5 cm , then AC = ... cm

a) 2.5 cm b) 10 cm c) $\frac{10}{3}$ cm d) 7.5 cm

4) In the opposite figure :

M (∠B) = ...



a) 25° b) 50°

c) 65° d) 70°

5) If the angles of a triangle are congruent, then this triangle is .... triangle.

a) a right-angled b) an isosceles

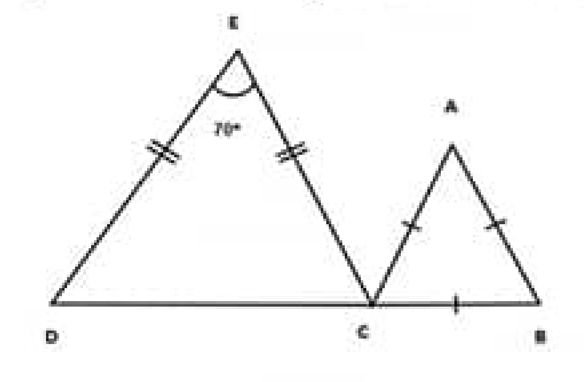
c) an obtuse d) an equilateral

6) In the opposite figure :

m (∠ACE) = ...

a) 120° b) 70°

c) 65° d) 110°



7) If the measure of one of the two base angles in an isosceles triangle is 30° then the triangle is ....

a) an obtuse-angled triangle b)an acute-angled triangle

c) a right-angled triangle d) an equilateral triangle

8) ΔABC which is right-angled at B , m (∠A) = 45° , then number of its symmetric line = ...

a) zero b) 1 c) 2 d) 3

9) The point of intersection of the medians of a triangle divides each of them in the ratio .... from the vertex.

a) 3 : 2 b) 1 : 2 c) 2 : 1 d) 3 : 1

10) ΔABC in which : m (∠A) = 50° , m (∠B) = 65° , then ....

a) m(∠A) = m (∠C) b) AB = BC

c) m(∠C) = 50° d) AB = AC

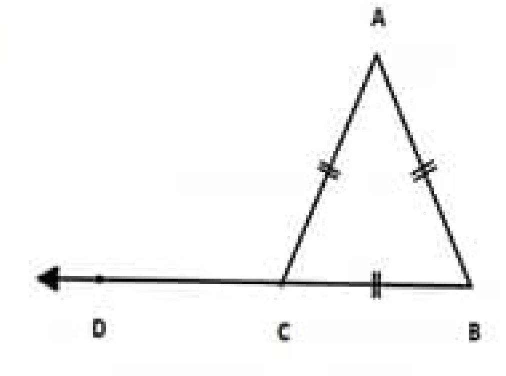
11) In the opposite figure :

ΔABC is equilateral , then m (∠ACD)

= ....

a) 45° b) 60°

c) 120° d) 135°



12) In ΔABC which is right-angled at B , if AC = 20 cm , then the length of the median of the triangle drawn from B equals................

a) 10 cm b) 8 cm c) 6 cm d) 5 cm

13) XYZ is a triangle in which : m (∠Z) = 70° and m (∠Y) = 60°, then YZ .... XY

a) > b) < c) = d) twice

14) The length which can be lengths of a triangle are ....

a) 0, 3, 5 b) 3, 3, 5 c) 3, 3, 6 d) 3, 3, 7

15) The triangle in which the measure of two angles of it are 42° and 69° is ....

a) an isosceles triangle. b) an equilateral.

c) a scalene triangle. d) a right-angled triangle

16) The triangle which has three axes of symmetry is .... Triangle.

a) scalene. b) isosceles. c) right-angled d) equilateral

17) The sum of lengths of two sides in a triangles is .... the length of the third side.

a) greater than b) smaller than

c) equals to d) twice

18) If the lengths of two sides in an isosceles triangle are 8 cm, and 4 cm , then the length of the third side is .... cm

a) 4 b) 8 c) 3 d) 12

19) In ΔABC if m (∠B) = 130° , then the longest side of it is ....

a) $\overline{BC}$ b) $\overline{AC}$ c) $\overline{AB}$ d) its median

20) $\Delta\, XYZ$ is an isosceles triangle in which : m (∠X) = 100°, then m(∠Y) = ... °

a) 100 b) 80 c) 60 d) 40

21) The measure of the exterior angle of the equilateral triangle equals ....

a) three b) two c) one d) no one

22) ΔABC in which : m (A) = 50° , m (∠B) = 60°, then the longest side of it is ....

a) $\overline{AB}$ b) $\overline{AC}$ c) $\overline{BC}$ d) $\overline{CB}$

23) ΔXYZ is right-angled at Y , then XZ .... YZ

a) > b) < c) = d) ≤

24) The length of the median drawn from the vertex of the right angle in the right-angled triangle = ... hypotenuse.

a) third b) quarter c) half d) twice

25) If the measure of one of the two base angles in the isosceles triangle is 40° , then the measure of the vertex angle is ....

a) 100° b) 55° c) 70° d) 110°

26) Which of the following numbers can be the lengths of sides of a triangle?

a) 4, 6, 10 b) 4, 6, 8 c) 2, 3, 6 d) 4, 5, 10

27) The number of axes of symmetry of the isosceles triangle equals ....

a) 3 b) 2 c) 1 d) zero

28) If ΔABC is a right-angled at B , AB = 6 cm , and BC = 80 cm, then the length of the median drawn from B is .... cm.

a) 10 b) 8 c) 6 d) 5

29) ΔABC in which m $(\angle B) > $ m $(\angle C)$, then AC .... AB.

a) greater than
b) smaller than
c) equals
d) smaller than or equals

30) The number of axes of symmetry in the isosceles triangle = ...

a) 1 b) 2 c) 3 d) 4

31) The point of concurrence of the medians of the triangle divides each median in the ratio .... : ...... from the base.

a) 2 : 1 b) 1 : 1 c) 5 : 10 d) 4 : 2

32) In the triangle ABC , if : AB = AC and m $(\angle A) = 40°$, then: m $(\angle C)$ = ...

a) 40° b) 50° c) 70° d) 140°

33) In the triangle ABC , if : AB $>$ AC , then : m $(\angle C)$ .... m $(\angle B)$.

a) $<$ b) $>$ c) $=$ d) $\leq$

34) The length of the median drawn from the vertex of the right angle in the right-angled triangle = ……….. the length of the hypotenuse of the triangle.

a) 2 b) $\frac{1}{3}$ c) $\frac{1}{2}$ d) $\frac{1}{4}$

35) ΔABC in which : m (∠B) = 70° , m (∠C) = 50° , then BC ……….. AB

a) > b) < c) = d) ≡

36) The number of axes of symmetry in the equilateral triangle = ………….

a) 0 b) 2 c) 3 d) 1

37) If the length of two sides in a triangle is 3 , 7 , then the length of the third side is ………..

a) 3 b) 8 c) 4 d) 10

38) If the length of median drawn from a vertex of a triangle equals half the length of the opposite side to this vertex then the angle at this vertex is ……………..

a) acute b) obtuse c) reflex d) right

39) $\overline{AD}$ is a median of ΔABC where M is the point of intersection of its median then AM = …………. AD

a) $\frac{1}{3}$ b) $\frac{2}{3}$ c) $\frac{1}{2}$ d) 2

40) The triangle ABC , m(∠B) = 70 ° , m (∠C) = 50° , then BC ……….. AB.

a) < b) > c) ≤ d) =

41) If AD is a median of triangle ABC , M is the point of intersection of the medians of triangle ABC , then AM = ... AD

a) $\frac{1}{2}$ b) 2 c) $\frac{1}{3}$ d) $\frac{2}{3}$

42) In triangle ABC , if m (∠C) = 60° , m (∠B) = 90° , then AC = ...

a) 2 BC b) $\frac{1}{2}$ BC c) 2 AB d) $\frac{1}{2}$ AB

43) The measure of exterior angle of an equilateral triangle = ...

a) 60 ° b) 90° c) 120° d) 180°

44) The numbers 4 , ... , 7 can be length sides of a triangle.

a) 11 b) 3 c) 6 d) 2

45) In ΔXYZ if XY = YZ = XZ , then m (∠X) = ...

a) 30° b) 60° c) 90° d) 180°

46) The measure of the exterior angle of the equilateral triangle = ...

a) 60° b) 90 ° c) 120 ° d) 180°

47) If ΔABC is right-angled at A and AB = AC , then m (∠B) = ...

a) 30° b) 45° c) 60° d) 90°

48) If the measure of one of the two base angles in the isosceles triangle = 30° , then the triangle is ....

a) obtuse-angled. b) acute-angled

c) right-angled d) equilateral triangle.

49) In ΔXYZ , if XY = XZ , then the exterior angle at the vertex Z is ....

a) acute b) obtuse c) right d) reflex

50) In ΔABC : if CA = CB and m (∠C) m (∠A) , then m (∠B) = ...

a) 30 ° b) 60° c) 90 ° d) 120°

51) If the sum of measures of two congruent angles in a triangle $= \frac{2}{3}$ the sum of measures of its angles , then the triangle is ....

a) right-angled b) isosceles c) equilateral d) scalene

52) If ABCD is a quadrilateral in which AB = AD and BC = DC, then $\overleftrightarrow{AC}$ is .... $\overline{BD}$

a) parallel to b) equal

c) the axis of symmetry of d) congruent to

53) The triangle whose sides lengths are 2 cm , (x+3) cm , and 5cm becomes an isosceles triangle when x = ... cm.

a) 1 b) 2 c) 3 d) 4

54) If the length of any side in a triangle = $\frac{1}{3}$ of the perimeter of the triangle , then the number of axes of symmetry of the triangle = ...

a) 1 b) 2 c) 3 d) zero

55) If $\overleftrightarrow{XY}$ is the axis of symmetry of $\overline{AB}$, then ....

a) AX = BY b) AX = BX c) BY = XY d) AY = BX

56) In the rhombus ABCD , the axis of symmetry of $\overline{AC}$ is ....

a) $\overleftrightarrow{BD}$ b) $\overleftrightarrow{AB}$ c) $\overleftrightarrow{AD}$ d) $\overleftrightarrow{CD}$

57) In the square ABCD , $\overleftrightarrow{BD}$ is the axis of symmetry of ....

a) $\overline{AB}$ b) $\overline{AC}$ c) $\overline{AD}$ d) $\overline{CD}$

58) If m is the point of intersection of the medians of ΔABC and D is the midpoint of $\overline{BC}$, then AD = ...

a) 2 AM b) $\frac{2}{3}$ AM c) $\frac{3}{2}$ AM d) 4 MD

59) The point of intersection of the medians of the triangle divides each of them with the ratio .... : .... from the vertex.

a) 2 : 1 b) 1 : 2 c) 3 : 1 d) 3 : 2

60) If M is the point of intersections of the medians of the the triangle in ΔABC and $\overline{AX}$ is a median of length 6 cm , then AM equals ....

a) 1 cm b) 2 cm c) 3 cm d) 4 cm

61) ABCD is a rectangle ,M is the point of intersection of its diagonals. If the length of the diagonal is 6 cm , then the length of the median $\overline{AM}$ equals ....

a) 2 cm b) 3 cm c) 6 cm d) 12 cm

62) The measure of the exterior angle of the equilateral triangle equals ....

a) 30° b) 60 ° c) 90° d) 120°

63) If the measure of the vertex angle of the isosceles triangle equals 50° , then the measure of each angle of its base equals...........

a) 40° b) 65° c) 70° d) 130°

64) If the measure of one of the two base angles of the isosceles triangle equals 40° , then the measure of the vertex angle is ....

a) 40° b) 50° c) 80° d) 100°

65) The two base angles of the isosceles triangle are ....

a) complementary b) supplementary
c) congruent d) straight angles

66) The axis of symmetry of the line segment is the straight line which ....

a) is parallel to the line segment.
b) is perpendicular to the line segment.
c) bisects the line segment.
d) is the perpendicular bisector of the line segment.

67) If XA = XB and YA = YB , then $\overleftrightarrow{XY}$ ………….. $\overline{AB}$

a) // b) ⊥ c) = d) ≡

68) If A lies on the axis of symmetry of $\overline{XY}$, then $\overline{AX}$ ……….. $\overline{AY}$

a) // b) ⊥ c) = d) ≡

69) In ΔABC if m (∠B) > m (∠C) , then …………

a) AB < AC b) AB = AC c) AB > AC d) $\overline{AB} \equiv \overline{BC}$

70) In ΔXYZ if XY < XZ , then …………..

a) m (∠Y) < m(∠Z) b) m (∠Y) > m(∠Z)

c) m (∠Y) = m (∠Z) d) m (∠Z) > (∠X)

71) If ΔABC is right-angled at B , then …………..

a) AC < AB b) AC < BC c) AB < AC d) BC = AB

72) ΔABD is obtuse-angled at B and C is the midpoint of $\overline{BD}$, then the longest side is …………..

a) $\overline{AB}$ b) $\overline{AC}$ c) $\overline{AD}$ d) $\overline{BD}$

73) The sum of lengths of any two sides in a triangle is …….the length of the third side.

a) smaller than b) greater than c) equal d) twice

74) The length of any side in the triangle ………. The sum of lengths of the other two sides.

a) smaller than b) greater than c) equal d) twice

75) If the length of two sides in an isosceles triangle are 2 cm and 5 cm , then the length of the third side is ………….

a) 2 cm b) 3 cm c) 5 cm d) 7 cm

76) The length of two sides in a triangle are 4 cm and 9 cm and it has one axis of symmetry , then the length of third side is ....

a) 4 cm b) 5 cm c) 9 cm d) 13 cm

77) Which of the following set of numbers can be length of sides of a triangle ?

a) 2, 3, 4 b) 2, 3, 5 c) 2, 3, 6 d) 2, 3, 7

78) Which of the following set of numbers can not be lengths of sides of a triangle?

a) 3, 4, 4 b) 3, 4, 5 c) 3, 4, 6 d) 3, 4, 7

79) ΔABC in which m ($\angle$C) = 65° and m ($\angle$A) = 75° , then ....

a) AB > BC b) AB < AC c) BC > AB d) AB = AC

80) In ΔABC in which m ($\angle$B) + m which m ($\angle$C) = 2cm ($\angle$A) , then m ($\angle$A) equals ....

a) 30° b) 60 ° c) 45 ° d) 90°

81) The sum of lengths of any two sides in a triangle is .... the length of the third side.

a) less than b) greater than c) equal d) half

82) The lengths of any side in a triangle .... the sum of lengths of the two other sides.

a) > b) < c) = d) twice

83) Which of the following numbers cannot be the lengths of sides of a triangle ....

a) 7, 7, 5 b) 9, 9, 9 c) 3, 6, 12 d) 3, 4, 5

84) If the lengths of two sides in a triangle are 7 cm and 4 cm , then the length of the third side can be ....

a) 1 cm b) 2 cm c) 3 cm d) 4 cm

85) If the lengths of two sides of an isosceles triangle are 3 cm and 7 cm , then the length of the third side = ...

a) 7 cm b) 3 cm c) 4 cm d) 10 cm

86) A triangle has one axis of symmetry , the length of two sides in it are 4 cm and 8 cm , then its perimeter = ...

a) 16 cm b) 20 cm c) 24 cm d) 30 cm

87) In ΔABC : if AB = 3cm , BC = 5 cm and AC = x cm , then x ∈ ....

a)]3, 5[b)]2 , 5 [c)]5 , 8 [d)] 2 , 8 [

88) If the lengths of two sides of a triangle are 5 cm and 10 cm , then the length of the third side belongs to ....

a) [10, 15 [b)] 5 , 15 [c)] 5, 10] d) [10, 15]

(2) Complete each of the following :

1) The number of axes of symmetry in the equilateral triangle equals ....

2) The length of the median which is drawn from the vertex of the right angle in the right-angled triangle equals ....

3) The bisector of the vertex angle of the isosceles triangle..............

4) If the measure of one of the angles of the right-angled triangle is 45° , then the triangle is ....

5) The two base angles of the isosceles triangle are ....

6) In ΔABC , if D is the midpoint of $\overline{BC}$, then $\overline{AD}$ is called..............

7) The number of medians of the triangle is ....

8) The medians of the triangle intersect at ....

9) The point of concurrence of the medians of the triangle divides each median in the ratio .... : .... from the vertex.

10) The point of the intersection of the medians of the triangle divides each of them with the ratio 2 : .... From the base.

11) The number of medians in the right-angled triangle is ......

12) The length of the median from the vertex of the right angle in the right-angled triangle equals ……………..

13) If the length of the median draw from a vertex of a triangle equals half the length of the opposite side to this vertex , then the angle at this vertex is ……………

14) The length of the side opposite to the angle of measure 30° in the right-angled triangle = ……………….

15) The length of the hypotenuse in thirty and sixty triangle equals …………… the length of the side opposite the angle whose measure is 30°

16) The base angle of the isosceles triangle are …………..

17) The measure of each angle in the equilateral triangle = …………

18) In ΔDEF , if DE = DF , then m(∠E) = m (∠……….)

19) In the isosceles triangle , if the measure of one of the two base angles is 65° , then the measure of its vertex angle =……………….

20) In the isosceles triangle , if the measure of the vertex angle = 40° , then the measure of one of the two base angles equals……………..°

21) In ΔABC , if AB = AC and m (∠A) = 80° , then m (∠B) = m(∠ ………) = …………..°

22) If two angles in the triangle are congruent , then the two sides opposite to these two angles are .... and the triangle is ....

23) If the three angles in the triangle are congruent , then the triangle is ....

24) In ΔABC , if m(∠A) = 50° and m (∠B) 80°, then the triangle is ....

25) If the measure of one angle in the right-angled triangle is 45° , then the triangle is ....

26) If the measure of one angle of an isosceles triangle = 60° , then the triangle is ....

27) ABC is a triangle in which AB = AC and m (∠A) = 60° if its perimeter = 18 cm , then BC = ... cm.

28) The straight line draw from the vertex of the isosceles triangle perpendicular to the base is called ....

29) The number of axes of symmetry in the equilateral triangle = ...

30) The number of axes of symmetry in the isosceles triangle = ...

31) The number of axes of symmetry in the scalene triangle = ...

32) The median of the isosceles triangle drawn from the vertex angle ....

33) The bisector of the vertex angle of the isosceles triangle ....

34) The straight line passing through the vertex angle of the isosceles triangle perpendicular to its base ....

35) The axis of the line segment is ....

36) Any point belonging to the axis of a line segment is .... From its two terminals.

37) If C belong to the axis of symmetry of $\overline{AB}$, the ...... = ...

38) In ΔABC, if m(∠A) = m (∠B) = 60° , then the number of axes of symmetry of ΔABC is ....

39) In ΔABC, if m(∠A) = m (∠B) ≠ 60° , then the number of axes of symmetry of ΔABC is ....

40) In ΔABC, if AB = AC , m(∠A) = 60° , then the number of axes of symmetry of ΔABC is ....

41) If the measure of one of the angles of a right-angled triangle is 45° , then the n of axes of symmetry of it is ....

42) If In ΔABC has one axis of symmetry and m (∠ABC) = 120° , then m (∠A) = ...

43) If two sides in the triangle are not equal in length , then the longest of them is opposite to an angle of .... measure.

44) If the measures of two angles are different , then the greatest in measure is opposite to a side of ....

45) The longest side in the right-angled triangle is ....

46) The distance between a point and a given straight line is the length of ....

47) In the obtuse-angle triangle , the longest side is ....

48) In the isosceles triangle if AB = AC , m(∠A) = 70° , then AB< ....

49) The longest side in the triangle ABC in which m(∠A) = 105° is ....

50) The shortest side in ΔABC in which m(∠A) = 40° and m(∠B) = 60° is ....

51) The longest side in ΔXYZ in which m(∠X) = m(∠Y) + m(∠Z) = is ....

52) In ΔXYZ if m(∠X) > m(∠Z) then XY < ....

53) In ΔABC if AB > BC , then m(∠A) < ....

54) In ΔABC if m(∠A) = 67° and m(∠B) = 33° , then AB > .... > ....

55) In any triangle the sum of lengths of any two sides is greater than ....

56) In ΔABC it will be AB + BC > ....

57) In ΔDEF it will be EF < .... + ...

58) In ΔABC of AB < BC < AC , then the smallest angle in measure is ....

59) ABC is an isosceles triangle where AB = 3 cm and BC = 7 cm , then AC = ...

60) An isosceles triangle in which the lengths of two of its sides are 4 cm and 8 cm , then the length of the third side equals.................

61) If two angles in a triangle are unequal in measure , then the greater angle is measure is opposite to .... and if the two lengths of two sides in a triangle unequal then the greater side in length is opposite to the angle which is ....

62) The smallest angle of a triangle (in measure) is opposite to ....

63) The longest side in the right-angled triangle is ....

64) The shortest distance between a given point and a given straight line is ....

65) ABC is a triangle in which : m (∠C) = 110° , then its longest side is ....

66) In ΔABC : if m (∠A) = 50° , m (∠B) = 30° , then the shortest side in the triangle is ....

67) In ΔABC : if m (∠A) = m (∠B) + m (∠C) , then the longest side in the triangle is ....

68) The lengths of two sides in the triangle are not equal , then the greater side in length is opposite to ....

69) In ΔABC , AB = 7 cm , BC = 5 cm and AC = 6 cm , then the smallest angle in measure is ....

70) In ΔDEF , if DE > EF , then m (∠F) > ....

71) In any triangle ABC , if AB > AC > BC , then

m (∠ ....) < m (∠ ....) < m (∠..............)



Algebra

2^{nd} Preparatory



Part (1)

HANA
مدونة هنا جلال التعليمية

(1) Complete:

1) $\sqrt[3]{c^3}$ = ...

2) $\sqrt{16} = \sqrt[3]{\dots\dots}$

3) $-\sqrt[3]{-1} - \sqrt{1}$ = ...

4) $\frac{\sqrt[3]{-64}}{\sqrt{64}}$ = ...

5) $-\sqrt[3]{64}$ + ... = 5

6) $\mathbb{Q} \cap \grave{\mathbb{Q}}$ = ...

7) $\mathbb{Q} \cup \grave{\mathbb{Q}}$ = ...

8) $\mathbb{R}^{+} \cap \mathbb{R}^{-}$ = ...

9) $\mathbb{R} - \grave{\mathbb{Q}}$ = ...

10) $\mathbb{R} - \{0\}$ = ...

11) $\mathbb{R} - \mathbb{Q}$ = ...

12) The multiplicative neutral element in $\mathbb{R}$ is .... and the additive neutral in $\mathbb{R}$ is ....

13) The additive inverse of the number 3 - $\sqrt{5}$ is ....

14) The multiplicative inverse of the number $\frac{7}{\sqrt{7}}$ is $\frac{\dots\dots}{\sqrt{7}}$

15) The conjugate number of the number $\frac{2}{\sqrt{3}-\sqrt{2}}$ is ....

16) If x = 2 + $\sqrt{5}$ and y is the conjugate number of x then $(x - y)^2$ = ...

17) If x = $\sqrt{3} + 2$, y = $\sqrt{3} - 2$ then (xy , x + y) = ...

18) $\sqrt[3]{2} \times 3\sqrt[3]{32}$ = ...

19) $\sqrt[3]{54} + \sqrt[3]{16} - \sqrt[3]{250}$ = ...

20) $\sqrt[3]{16} - \frac{1}{3}\sqrt[3]{54} + \sqrt[3]{-2}$ = ...

21) $\sqrt[3]{\frac{2}{3}} \times \sqrt[3]{12}$ = ...



22) If x = 2 , y = $\sqrt[3]{-16}$, then $\left(\frac{x}{y}\right)^3$ = …………….

23) $\frac{1}{2}\sqrt[3]{56} - \sqrt[3]{\frac{7}{27}}$ = …………….

24) [3 , 4 [∪] 3 , 4] = …………….

25)] – 3 , 2] – [0 , 2] = …………….

26) [2 , 7] -] 2 , 7 [= …………….

27) $\frac{4}{\sqrt{5}+\sqrt{3}} + \frac{4}{\sqrt{5}-\sqrt{3}}$ = …………….

28) $\frac{\sqrt{6}-\sqrt{5}}{\sqrt{6}+\sqrt{5}} + \frac{\sqrt{6}+\sqrt{5}}{\sqrt{6}-\sqrt{5}}$ = …………….

29) ……………. < $\sqrt{5}$ < …………….

30) ……………. < $\sqrt[3]{30}$ < …………….

(2) Choose the correct answer:

1) $\sqrt[3]{\left(\frac{1}{8}\right)^2}$ = …………….

a) $\frac{1}{2}$ b) $\frac{1}{4}$ c) $\frac{1}{8}$ d) $\frac{1}{16}$

2) $\sqrt[3]{\frac{0.001}{8}}$ = …………….

a) $\frac{1}{2}$ b) 2 c) $\frac{1}{20}$ d) 20

3) $-\sqrt{25} = \sqrt[3]{y}$, then y = …………….

a) 4 b) – 4 c) 25 d) – 125

4) If $\frac{x}{3} = \frac{9}{x^2}$, then x = …………….

a) 1^3 b) 3 c) 9 d) 27



5) The irrational number in the following numbers is …………….

a) $\sqrt{\frac{1}{4}}$ b) $\sqrt[3]{8}$ c) $\sqrt{\frac{4}{9}}$ d) $\sqrt{2}$

6) If $n \in \mathbb{Z}_+$, $n < \sqrt{26} < n + 1$ then n = …………….

a) 15 b) 5 c) – 5 d) 24

7) The square whose area is 10 cm^2, its side length is ………. cm.

a) 5 b) – 5 c) $\sqrt{10}$ d) $-\sqrt{10}$

8) $\sqrt[3]{24}$ ……………. 3 (> , < , =)

9) $\sqrt[3]{8}$ ……………. $\sqrt{4}$ (> , < , =)

10) $\sqrt[3]{3} - 1$ ……………. 0.2 (> , < , =)

11) $1 + \sqrt{3}$ ……………. $\sqrt{5}$ (> , < , =)

12) $\mathbb{R}$ = …………….

a) $\mathbb{Q} \cup \grave{\mathbb{Q}}$ b) $\mathbb{Z}_+ \cup \mathbb{Z}_-$ c) $\mathbb{R}_+ \cup \mathbb{R}_-$ d) $\mathbb{N} \cup \mathbb{R}_-$

13) If x is a negative number, then which of the following number is positive

a) x^2 b) x^3 c) 2x d) $\frac{x}{2}$

14) If $x \in \mathbb{R}^+$, $y \in \mathbb{R}^+$ and if $x^2 > y^2$ then …………….

a) x > y b) x < y c) x = y d) $x \leq y$

15) The s.s of the equation $x^2 + 1 = 0$ in $\mathbb{R}$ is …………….

a) { - 1 } b) { 1 , - 1 } c) { 1 } d) $\emptyset$

16) 3 ……………. [3 , 5] (∈ , ∉)

17) | - 3 | ……………. [2 , ∞ [(∈ , ∉)

18) 5 …………….] $\sqrt{5}$, $\sqrt{23}$ [(∈ , ∉)

19) $\sqrt[3]{-1}$ …………….] $-\infty$, 1 [(∈ , ∉)

20) The multiplicative inverse of the number $\sqrt{5}$ = ……………

a) – 5 b) $\frac{-1}{5}$ c) $\frac{5}{\sqrt{5}}$ d) $\frac{\sqrt{5}}{5}$

21) The additive inverse of the number $\frac{6}{\sqrt{2}}$ is ……………

a) $-2\sqrt{3}$ b) $2\sqrt{3}$ c) $-3\sqrt{2}$ d) $3\sqrt{2}$

22) $\sqrt[3]{\frac{2}{9}}$ = ……………

a) $\frac{\sqrt[3]{6}}{3}$ b) $\sqrt[3]{\frac{1}{6}}$ c) $\sqrt[3]{6}$ d) $\sqrt[3]{2}$

(3) Find the value of x in each of the following:

a) $\sqrt[3]{x} = \frac{-1}{4}$

b) $\sqrt[3]{x} - 3 = -1$

c) $x^3 + 5 = 32$

d) $\frac{1}{5}x^3 = -200$

e) $x < \sqrt[3]{-100} < x + 1$

f) $x < |-\sqrt{35}| < x + 1$

(4) Find the value of a , b

a) $\frac{3}{2\sqrt{2}-\sqrt{5}} = a\sqrt{2} + b\sqrt{5}$

b) $\frac{11}{2\sqrt{5}+3} = a\sqrt{5} + b$

(5) Write the conjugate of the numbers:

a) $\sqrt{5} + \sqrt{3}$ b) $5 - 2\sqrt{7}$



(6) If x = $\frac{2}{\sqrt{7}-\sqrt{5}}$, y = $\frac{2}{\sqrt{5}+\sqrt{7}}$ find $(x + y)^2$

(7) If x = [2 , 5 [and y = [-1 , 3 [find using the number line:

1) x ∪ y 2) x ∩ y 3) x – y

4) y – x 5) x` 6) y`

(8) A square of side length is 6 cm find its diagonal length.

(9) A rectangle with dimensions 5 cm , 7 cm, if the area equals the area of a square, then find the side length of the square and its diagonals length.

(10) Prove that $\sqrt{7}$ included between 2.6 and 2.7

(11) Find the s.s in ℚ :

a) $x^2 = 13$

b) $\frac{2}{5}x^2 = \frac{25}{2}$

c) $(x^3 + 5)(x^2 - 3) = 0$

12) Represent $2 - \sqrt{3}$ on the number line



Part (2)

(1) Choose the correct answer:

1) $\mathbb{R}$ = ...

a) $\mathbb{R}_+ \cup \mathbb{R}_-$ b)] - ∞ , + ∞ [
c)] - ∞ , 0] d)] 0 , - ∞ [

2) It the volume of the sphere is $\frac{9}{16}\pi$ cm^3 , then it's radius length ....

a) 3π cm b) 3 cm c) $\frac{4}{3}$ cm d) $\frac{3}{4}$ cm

3) $\sqrt{8} - \sqrt{2}$ = ...

a) $\sqrt{2}$ b) 2 c) $\sqrt{6}$ d) 4

4) If the volume of the sphere is $\frac{32}{3}\pi$ cm^3, then it's diameter is of length equals ....

a) 2 cm b) 4 cm c) 8 cm d) 32 cm

5) [-3 , 7 [- { - 3 , 7 } = ...

a) [- 3 , 7 [b)] – 3 , 7] c)] – 3 , 7 [d) (0 , 0)

6) { 8 , 9 , 10 } -] 8 , 10 [= ....

a) ∅ b) { 8 , 10 } c) { 9 } d) $\mathbb{N}$

7) The volume of a cube is 125 cm^3, then its total area equals ......

a) 25 cm^2 b) 50 cm^2 c) 125 cm^2 d) 150 cm^2

8)] – 3 , 5 [∩ [0 , 3 [= ....

a) [0 , 3] b) [0 , 3 [c)] – 3 , 0 [d) [3 , 5 [

9) $\frac{1}{2}\sqrt{20} + 10\sqrt{\frac{1}{5}}$ = ………………

a) $3\sqrt{5}$ b) $4\sqrt{5}$ c) 5 d) 12

10) The volume of a right circular cylinder is 90 πcm^3 and its height is 10 cm then the radius length of its base equals …………

a) 3 cm b) 4.5 cm c) 5 d) 9 cm

11) If x = $\sqrt{7} + \sqrt{3}$ and y = $\sqrt{7} - \sqrt{3}$ then xy = ………….

a) 4 b) 10 c) 40 d) 58

12) The edge length of a cube is 4 cm, then its volume is ………….

a) 16 cm^3 b) 24 cm^3 c) 64 cm^3 d) 96 cm^3

13) The volume of a cube is 64 cm^3, then its edge length is ………

a) 32 b) 16 cm c) 8 cm d) 4 cm

14) The circumference of a circle is 44 cm then its diameter length is ………….. ($\pi = \frac{22}{7}$)

a) 14 cm b) 22 cm c) 44 cm d) 154 cm

15) The multiplicative inverse of the number $\sqrt{5}$ is …………

a) $-\sqrt{5}$ b) $\frac{-1}{\sqrt{5}}$ c) $\frac{\sqrt{5}}{5}$ d) $\frac{5}{\sqrt{5}}$

16) [- 3 , 4] ∩ [2 , 6] = ………..

a) [- 3 , 2] b) [- 3 , 6] c) [2 , 4] d)] 2 , 6 [

17) If the radius length of a sphere is 3 cm, then its volume is ……

a) 4π cm^3 b) 9π cm^3 c) 27π cm^3 d) 36π cm^3

18) [- 3 , 2] – { - 3 , 6 } = ……………..

a)] -3 , 6 [b)] – 3 , 2 [c)] – 3 , 2] d) Ø





19) The s.s of the inequality – 1 < x + 3 < 3 in ℝ is …………

a) [- 4 , 0]   b) [2 , 6]   c)] – 4 , 0 [d)] 2 , 6 [

20) $\frac{1}{2}\sqrt{48} = 2 \times$ ……………………

a) $\sqrt{3}$ b) $\sqrt{12}$ c) $\sqrt{96}$ d) 192

21) The expression $\frac{\sqrt{25-9}}{\sqrt{25}-\sqrt{9}}$ = …………..

a) – 1   b) 1   c) 2   d) 3

22) The s.s of the in equality 3 ≤ x + 2 < 5 in ℝ equals ………….

a) [1 , 3 [b)] 1 , 3]   c) [1 , 3]   d)] 1 , 3 [

23) If the volume of a sphere equals $36\,\pi$ cm^3, then its radius length is …………

a) $\sqrt[3]{3}$ cm   b) $\sqrt{3}$ cm   c) 3 cm   d) 9 cm

24) The s.s of the inequality -2x ≥ 6 in ℝ is ……….

a)] - ∞ , - 3 [b)] - ∞ , - 3]   c) [-3 , + ∞ [d)] -3 , + ∞ [

<u>(2) Complete the following:</u>

1) [2 , 5] – { 2 , 5 } = ……………

2) if – x < 2 then x ∈ ……………

3) { - 1 , 0 , 1 } ∩] – 1 , 1 [= ……………

4)] - ∞ , 1] ∩ [- 4 , ∞ [= ……………

5) If $\sqrt{x} = \sqrt{2} + 1$ then x = ……………

6) [2 , 5] ∩ [2 , 5 [= ……………

7) $\sqrt[3]{64} = \sqrt{\ldots\ldots\ldots\ldots}$

8) The multiplicative inverse of the number $\frac{3}{\sqrt{3}}$ is $\frac{\ldots\ldots}{\sqrt{3}}$

9) The s.s of the inequality – x + 1 ≤ 0 in ℝ is ……………

10) If $x = \sqrt[3]{3} + 1$ and $y = \sqrt[3]{3} - 1$ then $(x+y)^3$ = ……………

11) [2 , ∞ [− [4 , ∞ [= ……………

12) If the side length of a square is L cm and its area is 30 cm^3, then the area of the square whose side length equals 2 L cm is ……

13) The slope of the straight line which passes through (-3 , 1) and (2 , 5) equals ……………

14) The sum of lengths of all edges of a cube is 36 cm then, its total area equals …………… cm^2.

15) The relation y = 3x + 4 , and x = 1 , then y = ……………

(3) Answer the following questions:

1) Reduce to the simplest form: $\sqrt{75} - \sqrt[3]{-125} + \frac{10}{\sqrt{3}-1}$

2) A right circular cylinder, whose height equals the radius length of its base and its volume equals $27\pi\ cm^3$ calculate its lateral surface area.

3) Solve in ℝ the inequality 5 – 2x ≤ 9 then represent the solution set on the number line.

4) Find the s.s of the inequality 3x < 2x + 4 in ℝ and represent the interval of solution on the number line.

5) If $x = \sqrt{3} - 1$ and $y = \frac{1}{\sqrt{3}-\sqrt{2}}$ find the value of $x \times y$

6) The area of one face of a cube is 36 cm^2 find the length of its edge, and its volume.

7) Find the s.s of the inequality 1 < x + 1 ≤ 4 in ℝ then represent the interval of solution on the number line.

8) Reduce to the simplest form $2\sqrt{5}\left(\sqrt{5}-2\right)+\sqrt{20}+10\sqrt{\frac{1}{5}}$

9) Find the value of $\sqrt{75}-2\sqrt{27}+3\sqrt{\frac{1}{3}}$

10) Find the s.s of the inequality $5 \leq 3 - x < 7$ in $\mathbb{R}$ and represent the interval of solution on the number line.

11) If $x = \sqrt{7}+3$ and $y = \sqrt{7}-3$ then find the value of $\left(\frac{x+y}{xy}\right)^2$

12) Find the s.s of the inequality $3 \leq x + 2 \leq 6$ in $\mathbb{R}$

13) Write the form of an interval the s.s of the inequality $-1 < 5 - 2x < 7$ in $\mathbb{R}$, then represent the solution on the number line.

14) If $x = \sqrt{5}+\sqrt{2}$ then prove that $\frac{6}{x}+2x = 4\sqrt{5}$

15) Find the totals area of a right circular cylinder of radius of its base is $\frac{7}{\sqrt{2}}$ cm and its height is $10\sqrt{2}$ cm. $(\pi = \frac{22}{7})$

16) If $x = 2\sqrt{2}-\sqrt{3}$ and $= \frac{5}{2\sqrt{2}-\sqrt{3}}$, then prove that x and y are two conjugate numbers.

17) Reduce to the simplest form: $\sqrt[3]{16}-\frac{1}{3}\sqrt[3]{54}+\sqrt[3]{-2}$

18) If $x = \frac{5}{\sqrt{7}-\sqrt{2}}$ and $= \frac{5}{\sqrt{7}+\sqrt{2}}$, then find the value of x^2y^2

19) If $a = \sqrt{2}+1$ and $b = \frac{1}{1+\sqrt{2}}$, then find the value of $(a-b)^2$

20) A metallic sphere of radius length 6 cm. It is melted and its material has been converted into a right circular cylinder its base radius is of length 6 cm calculate the height of the cylinder.

21) If (a , 2a) satisfies y = x – 1 then find the value of a

22) Represent the relation y = x + 2 graphically.

Statistics

(1) Choose the correct answer from those given:

1) The order of the median of the set of values 4, 5, 6, 7, 8 is …….

a) third b) fourth c) fifth d) sixth

2) If the order of the median of a set of values is the fourth then the number of these values is ……………..

a) 3 b) 5 c) 7 d) 9

3) If the order of the median of the set of values is the fifth, then the number of these values equals ……………..

a) 5 b) 6 c) 9 d) 10

4) The median of the set of the values 15 , 22 , 9 , 11 , 33 is ………

a) 9 b) 15 c) 18 d) 90

5) The median of the set of values 34, 23, 25, 40, 22, 4 is …………

a) 22 b) 23 c) 24 d) 25

6) The median of the set of the values 3, 6, 6, 7, 9, 11, 13, 14, 15, 20 is ……………..

a) 9 b) 10 c) 11 d) 20

7) If the median of the set of the values 27, 45, 19, 24, 28 is x then x = ……………..

a) 24 b) 27 c) 28 d) 45

8) If the median of the set of the values k + 1 , k + 2 , k + 5 , k + 3 , k + 3 where is (appositive number) is 13 then k = ……………..

a) 2 b) 5 c) 10 d) 13



9) The arithmetic mean of the values 19, 32, 27, 6, 6 is …………….

a) 90 b) 32 c) 18 d) 6

10) If the arithmetic mean of the values 27, 8, 16, 24, 6, k is 14 then k = …………….

a) 9 b) 6 c) 27 d) 84

11) If the arithmetic mean of the values 18, 23, 29, 2k – 1, k is 18 then k = …………….

a) 6 b) 7 c) 29 d) 90

12) The arithmetic mean of the values 3 – a , 5 , 1 , 4 , 2 + a equals …………….

a) 5 b) 2 c) 3 d) 15

13) If the arithmetic mean of 6 values is 12, then the sum of these values equals …………….

a) 12 b) 6 c) 18 d) 72

14) The set which its lowest boundary is 2 and its upper boundary is 6, then its centre is …………….

a) 3 b) 6 c) 4 d) 8

15) The set which its lowers limit is 5 and its upper limit is 7, then its centre is …………….

a) 9 b) 6 c) 4 d) 5

(2) Find the arithmetic mean of the following frequency distribution:

Sets	1-	3-	5-	7-	9-	Total
Frequency	4	6	8	7	5	30

(3) Find the arithmetic mean of the following frequency distribution:

Sets	5-	15-	25-	35-	45-	Total
Frequency	3	10	12	10	5	40

(4) Find by using the following frequence distribution

Sets	0-	2-	4-	6-	k-	Total
Frequency	m	5	8	7	2	25

a) The value of k and m

b) The median using the ascending cumulative curve

c) The arithmetic mean

d) The mode

Part (1) Answers

(1) Complete

1) C	2) 64	3) Zero
4) - $\frac{1}{2}$	5) 1	6) ∅
7) R	8) ∅	9) $\mathbb{Q}$
10) R – { 0 }	11) $\mathbb{Q}'$	12) 1 , zero
13) -3 + $\sqrt{5}$	14) 1	15) 2 ($\sqrt{3}$ + $\sqrt{2}$)
16) Zero	17) (-1 , 2$\sqrt{3}$)	18) 12
19) 10 $\sqrt[3]{2}$	20) Zero	21) 2
22) - $\frac{1}{2}$	23) $\frac{2}{3}$ $\sqrt[3]{7}$	24) [3 , 4]
25)] – 3 , 0 [	26) { 2 , 7 }	27) 4 $\sqrt{5}$
28) 22	29) 2 , 3	30) 3 , 4

(2) Choose

1) $\frac{1}{4}$	2) $\frac{1}{20}$	3) – 125
4) 3	5) $\sqrt{2}$	6) 5
7) $\sqrt{10}$	8) $<$	9) =
10) $>$	11) $>$	12) Q ∪ Q`
13) X^2	14) X $>$ Y	15) ∅
16) ∈	17) ∈	18) ∉
19) ∈	20) $\frac{\sqrt{5}}{5}$	21) -3 $\sqrt{2}$
22) $\frac{\sqrt[3]{6}}{3}$		

(3) a) $-\frac{1}{64}$ b) 8 c) 3

d) – 10 e) – 5 f) 5

(4) a) a = 3 , b = 1

b) a = 2 , b = 3

(5) a) $\sqrt{5} - \sqrt{3}$ b) $5 + 2\sqrt{7}$

(6) $X = \frac{2}{\sqrt{7}-\sqrt{5}} \times \frac{\sqrt{7}+\sqrt{5}}{\sqrt{7}+\sqrt{5}} = \sqrt{7} + \sqrt{5}$

$Y = \frac{2}{\sqrt{5}+\sqrt{7}} \times \frac{\sqrt{5}-\sqrt{7}}{\sqrt{5}-\sqrt{7}} = \sqrt{7} - \sqrt{5}$

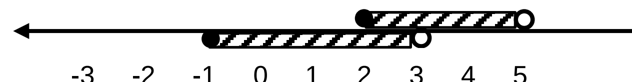
$(X + Y)2 = (\sqrt{7} + \sqrt{5} + \sqrt{7} - \sqrt{5})2$

$= (2\sqrt{7})2$

$= (4 \times 7)$

$= 28$

(7)



1) [-1 , 5 [

2) [2 , 3 [

3) [3 , 5 [

4) [-1 , 2 [

5)] - ∞ , 2 [∪ [5 , ∞ [

6)] - ∞ , -1 [∪ [3 , ∞ [



(8) A of square = 6 x 6 = 36 cm^2

d = $\sqrt{2A}$ = $\sqrt{2\,X\,36}$ = $\sqrt{72}$ = 8.5 cm

(9) A of Rectangle = 5 X 7 = 35 cm^2

A of Square = 35 cm^2

d = $\sqrt{2A}$ = $\sqrt{2\,X\,35}$ = $\sqrt{70}$ = 8.4 cm

the side length of the square = $\sqrt{A}$ = $\sqrt{35}$ = 5.9 cm

(10) $\sqrt{7} \simeq 2.65$

$2.6 < 2.65 < 2.7$

(11) a) X = $\pm\sqrt{13}$ S.S = { $\pm\sqrt{13}$ }

b) X = $\pm\sqrt{\frac{25}{2} X \frac{5}{2}}$ = $\pm\sqrt{\frac{125}{4}}$ = S.S = { $\pm\frac{\sqrt{125}}{2}$ }

c) $X^3 + 5 = 0$ or $X^2 - 3 = 0$

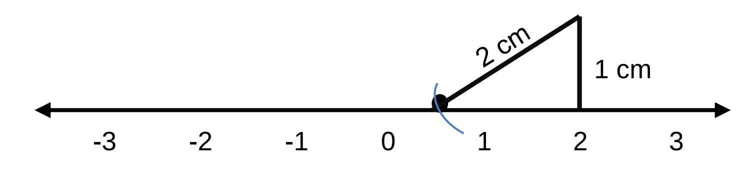
$X^3 = -5$ $X^2 = 3$

X = $\sqrt[3]{-5}$ X = $\pm\sqrt{3}$

S.S = { $\sqrt[3]{-5}$, $\pm\sqrt{3}$ }

(12) The length of the hypotenuse = $\frac{3+1}{2}$ = 2 cm

The length of the side = $\frac{3-1}{2}$ = 1 cm



Part (2) Answers

(1) Choose

1)] - ∞ , ∞ [

2) $r = \frac{3}{4}$

3) $\sqrt{2}$

4) 2 × 2 = 4 cm

5)] – 3 , 7 [

6) { 8 , 10}

7) T.A. = 5 × 5 × 6 = 150 cm^2

8) [0 , 3 [

9) $3\sqrt{5}$

10) $\sqrt{\frac{90\,\pi}{10\,\pi}}$ = 3 cm

11) 7 – 3 = 4

12) $v = 4^3 = 64\ cm^3$

13) $E = \sqrt[3]{64}$ = 4 cm

14) $d = \frac{c}{\pi}$ = 14 cm

15) $\frac{1}{\sqrt{5}} = \frac{\sqrt{5}}{5}$

16) [2 , 4]

17) $v = \frac{4}{3} \times \pi \times 3^3 = 36\,\pi$

18)] -3 , 2]

19)] -4 , 0 [

20) $\sqrt{3}$

21) $\frac{4}{5-3} = 2$

22) [1 , 3 [

23) $r = 3\sqrt{\frac{v}{\frac{4}{3}\pi}}$ = 3 cm

24)] - ∞ , - 3]

(2) Complete:

1)] 2 , 5 [

2) x > - 2 then x ∈] – 2 , ∞ [

3) { 0 }

4) [- 4 , 1]

5) $x = \left(\sqrt{2}+1\right)^2 = 5$

6) ∅

7) $\sqrt[3]{64} = 4 = \sqrt{16}$

8) $\frac{\sqrt{3}}{3} = \frac{1}{\sqrt{3}}$

9) x > 1 , s.s = [1 , ∞ [

10) $\left(2\sqrt[3]{3}\right)^3 = 8 \times 3 = 24$

11) [2 , 4 [

12) $A = S^2 = 4\ L^2 = 4 \times 30 = 120\ cm^2$

13) m = $\frac{5-1}{2-(-3)} = \frac{4}{5}$

14) E = $\frac{36}{12} = 3\ cm$, T.A = 3 × 3 × 6 = 54 cm^2

15) y = 3 × 1 + 4 = 7

(3):

1) $5\sqrt{3} - 5 + 5 + 5\sqrt{3} = 10\sqrt{3}$

2) h = r , v = $\pi r^2 h = \pi r^3$

r = $\sqrt[3]{\frac{v}{\pi}} = \sqrt[3]{\frac{27\pi}{\pi}} = 3\ cm$

L.S.A. = 2 πrh = 2 × π × 3 × 3 = 18 π

3) – 2 x $\leq$ 4 x $\geq$ - 2 S.S = [- 2 , ∞ [

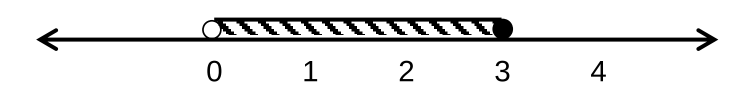
4) 3x – 2x < 4 x < 4 S.S =] - ∞ , 4 [

5) y = $\frac{1}{\sqrt{3}-\sqrt{2}} \times \frac{\sqrt{3}+\sqrt{2}}{3-2} = \ + (\sqrt{3} + \sqrt{2})$

xy = $\ + (\sqrt{3} - \sqrt{2})(\sqrt{3} + \sqrt{2}) = 3 - 2 = 1$

6) E = $\sqrt{36} = 6\ cm$, v = 6^3 = 216 cm^3

7) 0 < x $\leq$ 3 S.S =] 0 , 3]



8) $10 - 4\sqrt{5} + 2\sqrt{5} + 2\sqrt{5} = 10$

9) zero

10) 2 $\leq$ - x < 4

- 2 $\geq$ x > 4 s.s = [- 2 , 4 [

11) $\left(\frac{x+y}{xy}\right)^2 = \left(\frac{2\sqrt{7}}{7-9}\right)^2 = (-\sqrt{7})^2 = 7$



12) $1 \leq x \leq 4$ s.s = [1 , 4]

13) – 6 < - 2 < 2 , 3 > x > - 1 s.s =] – 1 , 3 [

14) $\frac{6}{\sqrt{5}+\sqrt{2}} + 2\sqrt{5} + 2\sqrt{2} = 2\left(\sqrt{5} - \sqrt{2}\right) + 2\sqrt{5} + 2\sqrt{2}$

$= 2\sqrt{5} - \cancel{2\sqrt{2}} + 2\sqrt{5} + \cancel{2\sqrt{2}} = 4\sqrt{5}$

15) T.A. = $2\pi rh = 2 \times \frac{22}{\cancel{7}} \times \frac{\cancel{7}}{\cancel{\sqrt{2}}} \times 10\cancel{\sqrt{2}} = 440$ cm^2

16) $y = \frac{5}{2\sqrt{2}-\sqrt{3}} \times \frac{2\sqrt{2}+\sqrt{3}}{2\sqrt{2}+\sqrt{3}} = \frac{5\,(2\sqrt{2}+\sqrt{3})}{8-3} = 2\sqrt{2} + \sqrt{3}$

so , y is the conjugate of x

17) $2\sqrt[3]{2} - \sqrt[3]{2} - \sqrt[3]{2} = zero$

18) $x = \sqrt{7} + \sqrt{2}\,, y = \sqrt{7} - \sqrt{2}$

$x^2y^2 = (xy)^2 = (7-2)^2 = 25$

19) $b = -(1 - \sqrt{2}) = \sqrt{2} - 1$

$(a-b)^2 = 2^2 = 4$

20) V sphere = V cylinder

$\frac{4}{3}\pi \times 6^3 = \pi \times 6^2 \times h$

$h = \frac{6^3 \times \frac{4}{3}}{6^2}$ = 8 cm

21) 2a = a – 1

a = - 1

22)

x	-1	0	1	2
y	1	2	3	4

Represent by yourself



Statistics

(1) Choose:

1) third 2) 9 3) 9

4) 15 5) $\frac{23+25}{2} = 24$ 6) $\frac{9+11}{2} = 10$

7) 27

8) k + 3 = 13 → k = 10

9) $\frac{19+32+27+6+6}{5} = 18$

10) $\frac{27+8+16+24+k+14}{7} = 14$ → k = 7 × 14 – 89 = 9

11) $\frac{18+23+29+2k-1+k}{5} = \frac{69+3k}{5} = 18$ → k = $\frac{5\times18-69}{3} = 7$

12) $\frac{3-1+5+1+4+2+a}{5} = 3$ 13) 6 × 12 = 72

14) $\frac{2+6}{2} = 4$ 15) $\frac{5+7}{2} = 6$

(2)

Sets	Center	Freq.	Center x freq.
1-	2	4	8
3-	4	6	24
5-	6	8	48
7-	8	7	56
9-	10	5	50
Total		30	186

Mean = $\frac{186}{60} = 6.2$

(3) Mean = $\frac{1240}{40} = 31$ " make table by yourself "

(4) a) k = 8 , m = 25 – (5 + 8 + 7 + 2) = 3

b) Mean = $\frac{125}{25} = 5$ (draw the mean table)

c)

The upper limit	Ascending cumulative freq.
less than 0	0
less than 2	3
less than 4	8
less than 6	16
less than 8	23
less than 10	25

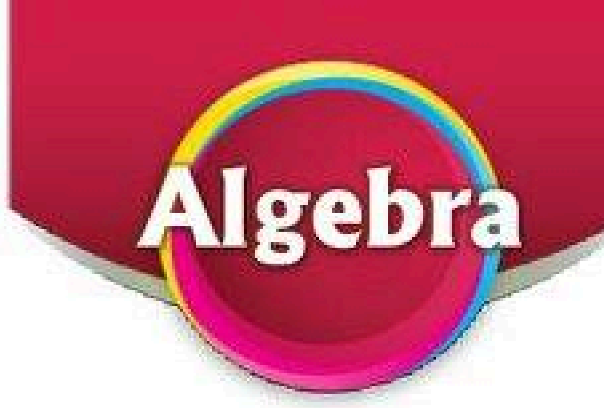
The order of median = $\frac{25}{2} = 12.5$

Median $\simeq$ 5

Mode $\simeq$ 5

Ascending Cumulative

Histogram



Question

(1) Choose the correct answer:

1) $\mathbb{R}$ = ...

a) $\mathbb{R}_+ \cup \mathbb{R}_-$ b)] - ∞ , + ∞ [c)] - ∞ , 0] d)] 0 , + ∞ [

2) The opposite figure represents the interval ....

a) [-3 , 5] b)] -3 , 5 [c) [-3 , 5 [d)] -3, 5]

-3 5

3) If the volume of the sphere is $\frac{9}{16}\pi$ cm^3 then its radius length ....

a) 3 π cm b) 3 cm c) $\frac{4}{3}$ cm d) $\frac{3}{4}$ cm

4) $\sqrt{8} - \sqrt{2}$ = ...

a) $\sqrt{2}$ b) 2 c) $\sqrt{6}$ d) 4

5) If the volume of the sphere is $\frac{32}{3}\pi$ cm^3 then its diameter is of length equals ....

a) 2 cm b) 4 cm c) 8 cm d) 32 cm

6) [– 3 , 7 [– { – 3 , 7 } = ...

a) [– 3 , 7 [b)] – 3 , 7] c)] – 3 , 7 [d) (0 , 0)

7) { 8 , 9 , 10 } –] 8 , 10 [= ....

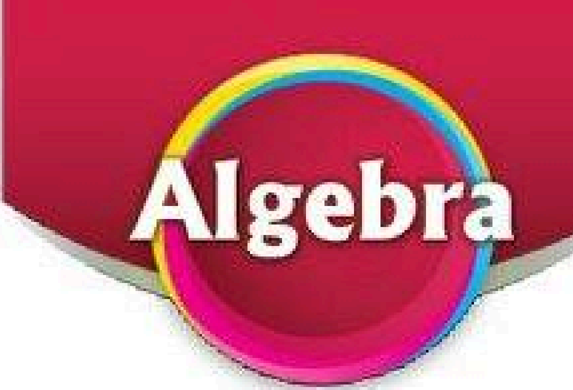
a) ∅ b) { 8 , 10 } c) { 9 } d) $\mathbb{N}$

8) The volume of a cube is 125 cm^3, then its total area equals ....

a) 25 cm^2 b) 50 cm^2 c) 125 cm^2 d) 150 cm^2

9)] – 3 , 5 [∩ [0 , 3 [= ....

a) [0 , 3] b) [0 , 3 [c)] – 3 , 0 [d) [3 , 5 [



10) $\frac{1}{2}\sqrt{20} + 10\sqrt{\frac{1}{5}}$ = ...

a) $3\sqrt{5}$ b) $4\sqrt{5}$ c) 5 d) 12

11) The volume of a right circular cylinder is 90 π cm^3 and its height is 10 cm then the radius length of its base equals ....

a) 3 cm b) 4.5 cm c) 5 cm d) 9 cm

12) If $x = \sqrt{7} + \sqrt{3}$ and $y = \sqrt{7} - \sqrt{3}$ then xy = ...

a) 4 b) 10 c) 40 d) 58

13) The edge length of a cube is 4 cm, then its volume is ....

a) 16 cm^3 b) 24 cm^3 c) 64 cm^3 d) 96 cm^3

14) The volume of a cube is 64 cm^3, then its edge length is ....

a) 32 cm b) 16 cm c) 8 cm d) 4 cm

15) The circumference of a circle is 44 cm then its diameter length is .... ($\pi = \frac{22}{7}$)

a) 14 cm b) 22 cm c) 44 cm d) 154 cm

16) The multiplicative inverse of the number $\sqrt{5}$ is ....

a) $-\sqrt{5}$ b) $\frac{-1}{\sqrt{5}}$ c) $\frac{\sqrt{5}}{5}$ d) $\frac{5}{\sqrt{5}}$

17) [– 3 , 4] ∩ [2 , 6] = ...

a) [– 3 , 2] b) [– 3 , 6] c) [2 , 4] d)] 2 , 6 [

18) If the radius length of a sphere is 3 cm, then its volume is ....

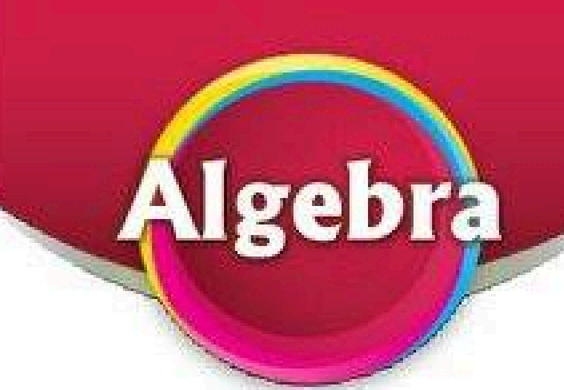
a) 4 π cm^3 b) 9 π cm^3 c) 27 π cm^3 d) 36 π cm^3

19) [– 3 , 6] – {– 3 , 6 } = ...

a)] – 3 , 6 [b)] – 3 , 2 [c)] – 3 , 2] d) Ø

20) The S.S of the inequality $-1 < x + 3 < 3$ in $\mathbb{R}$ is ....

a) [– 4 , 0] b) [2 , 6] c)] – 4 , 0 [d)] 2 , 6 [



21) $\frac{1}{2}\sqrt{48}$ = 2 × …………..

a) $\sqrt{3}$ b) $\sqrt{12}$ c) $\sqrt{96}$ d) 192

22) The expression $\frac{\sqrt{25-9}}{\sqrt{25}-\sqrt{9}}$ = …………..

a) – 1 b) 1 c) 2 d) 3

23) The S.S of the in equality 3 $\leq$ x + 2 < 5 in $\mathbb{R}$ equals …………..

a) [1 , 3 [b)] 1 , 3] c) [1 , 3] d)] 1 , 3 [

24) If the volume of a sphere equals 36 π cm^3, then its radius length is …………..

a) $\sqrt[3]{3}$ cm b) $\sqrt{3}$ cm c) 3 cm d) 9 cm

25) The S.S of the inequality – 2 x $\geq$ 6 in $\mathbb{R}$ is …………..

a) $]-\infty, -3[$ b) $]-\infty, -3]$ c) $[-3, +\infty[$ d) $]-3, +\infty[$

(2) Complete the following:

1) [2 , 5] – { 2 , 5 } = …………..

2) If – x < 2 then x ∈ …………..

3) { – 1 , 0 , 1 } ∩] – 1 , 1 [= …………..

4)] – ∞ , 1] ∩ [– 4 , ∞ [= …………..

5) If $\sqrt{x} = \sqrt{2} + 1$ then x = …………..

6)] 2 , 5] ∩ [2 , 5 [= …………..

7) $\sqrt[3]{64} = \sqrt{\ldots\ldots}$

8) The multiplicative inverse of the number $\frac{3}{\sqrt{3}}$ is $\frac{\ldots\ldots}{\sqrt{3}}$

9) The S.S of the inequality – x + 1 $\leq$ 0 in $\mathbb{R}$ is …………..

10) If x = $\sqrt[3]{3} + 1$ and y = $\sqrt[3]{3} - 1$ then (x + y)^3 = …………..

11) [2 , ∞ [– [4 , ∞ [= …………..



Model Answers

(1) Choose

1) b
2) c
3) c
4) a
5) b
6) b
7) b
8) d
9) b
10) a
11) a
12) a
13) c
14) d
15) a
16) c
17) c
18) d
19) a
20) c
21) a
22) c
23) a
24) c
25) b

(2) complete

1)] 2 , 5 [
2)] -2 , ∞ [
3) { 0 }
4) [-4 , 1]
5) $3 + 2\sqrt{2}$
6)] 2 , 5 [
7) $\sqrt{16}$
8) $\frac{1}{\sqrt{3}}$
9) [1 , ∞ [

10) $\left(\sqrt[3]{3}+1+\sqrt[3]{3}-1\right)^3 = \left(2\sqrt[3]{3}\right)^3 = 8 \times 3 = 24$

11) [2 , 4 [

12) $L = \sqrt{30}$, $2L = 2\sqrt{30}$

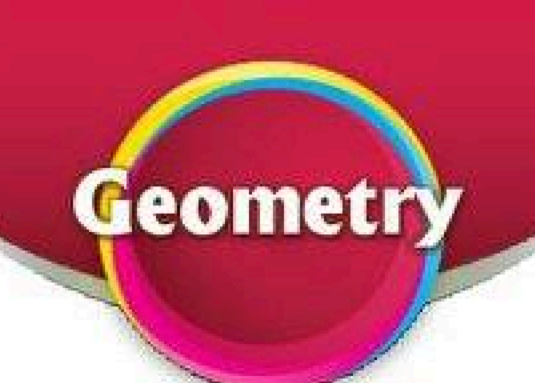
$A = (2L)^2 = \left(2\sqrt{30}\right)^2$

$= 4 \times 30 = 120 \text{ cm}^2$

13) $E = \frac{Sum\ of\ edges}{12} = \frac{36}{12} = 3\ cm$

Face area = $3 \times 3 = 9 \text{ cm}^2$

Total area = $9 \times 6 = 54 \text{ cm}^2$

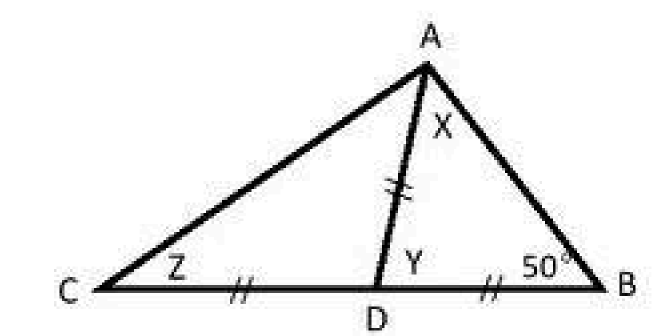


d) XYZ is an isosceles triangle where XY = XZ if m ($\angle$ X) = 80°

then m ($\angle$ Y) = …………..

e) In Δ ABC if $\overline{AB} \perp \overline{BC}$ and AB = BC then m ($\angle$ A) = …………..

(9) In the opposite figure:

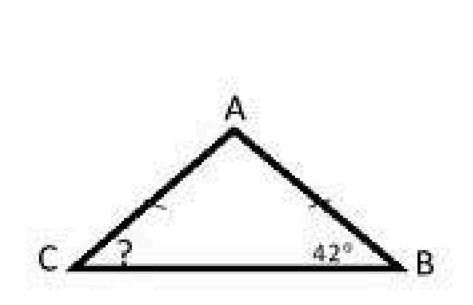


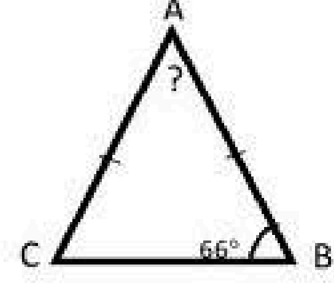
a) X = …………..

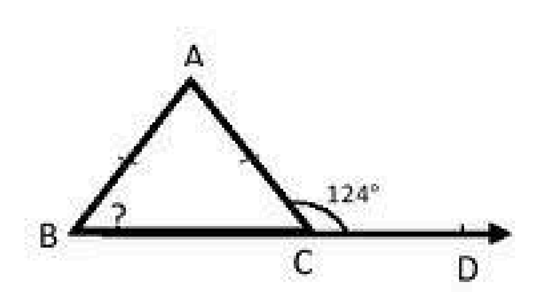
b) Y = …………..

c) Z = …………..

(10) Complete using data registered on each figure:







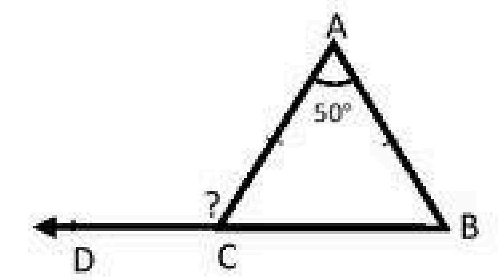


Fig. (1) m ($\angle$ C) =………….. Fig. (2) m ($\angle$ A) = …………..

Fig. (3) m ($\angle$ B) = ………….. Fig. (4) m ($\angle$ D) = …………..

Second: Choose the correct answer from those given:

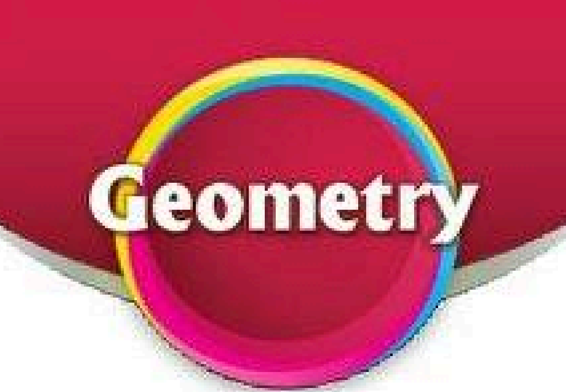
1. If M is the point of intersection of the medians of Δ ABC and D is the midpoint of $\overline{BC}$, then AD = …………..

a) 2 Am b) $\frac{2}{3}$ MD c) $\frac{3}{2}$ AM d) 4 MD

2. The point of intersection of the medians of the triangle divides each of them with the ratio ………….. from the vertex.

a) 2 : 1 b) 1 : 2 c) 3 : 1 d) 3 : 2





3. If M is the point of intersections of the medians of the triangle in Δ ABC and $\overline{AX}$ is a median of length 6 cm, then AM equals ……

   a) 1 b) 2 cm c) 3 cm d) 4 cm

4. ABCD is a rectangle M is the point of intersection of its diagonals. If the length of the diagonal is 6 cm, then the length of the median $\overline{AM}$ equals …………..

   a) 2 cm b) 3 cm c) 6 cm d) 12 cm

5. The measure of the exterior angle of the equilateral triangle equals …………..

   a) 30° b) 60° c) 90° d) 120°

6. If the measure of the vertex angle of the isosceles triangle equals 50°, then the measure of each angle of its base equal …………..

   a) 40° b) 65° c) 70° d) 130°

7. If the measure of one of the two base angles of the isosceles triangle equals 40°, then the measure of the vertex angle is …………..

   a) 40° b) 50° c) 80° d) 100°

8. The base angles of the isosceles triangle are …………..

   a) complementary b) supplementary
   c) congruent d) straight angles

9. If XA = XB and YA = YB then $\overleftrightarrow{XY}$ ………….. $\overline{AB}$

   a) // b) ⊥ c) = d) ≡

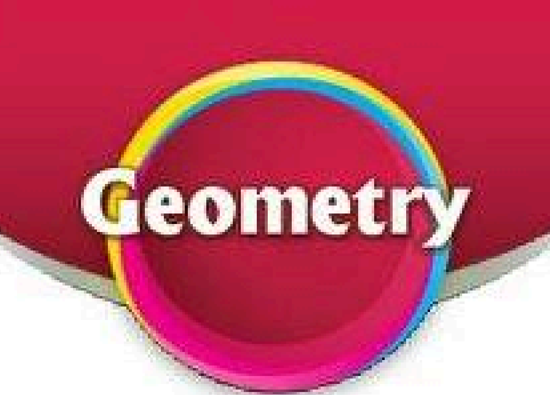
10. If A lies on the axis of symmetry of $\overline{XY}$ then $\overline{AX}$ ………….. $\overline{AY}$

    a) // b) ⊥ c) = d) ≡

11. The quadrilateral ABCD in which $\overleftrightarrow{BD}$ is an axis of symmetry of $\overline{AC}$ may be …………..

    a) a rhombus b) a rectangle
    c) a parallelogram d) a trapezium



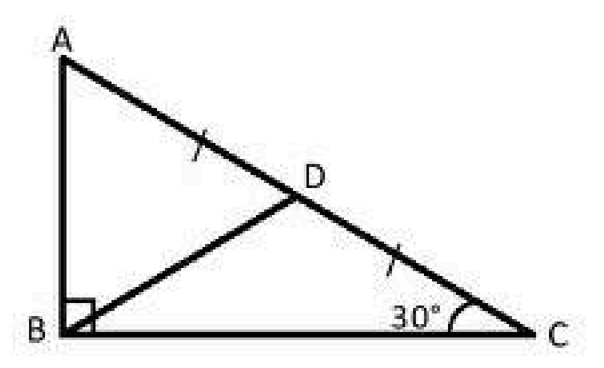


12. If AX = AY and BX = BY where X and Y are at different sides of $\overline{AB}$ then $\overleftrightarrow{XY}$ .... $\overline{AB}$

a) //   b) ⊥   c) =   d) ≡

Third: Questions for getting the answer:

(1) In the opposite figure:

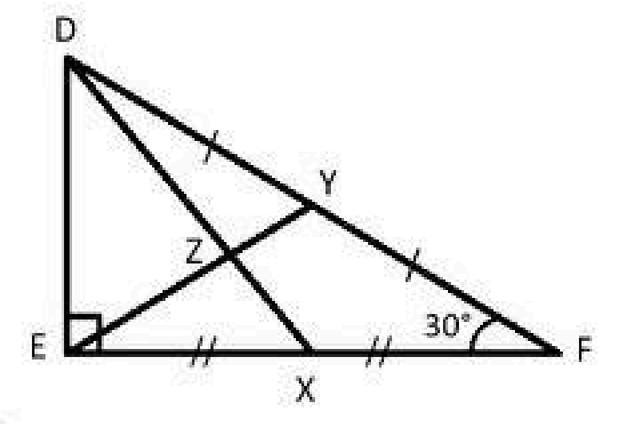


m (∠ ABC) = 90° , D is the midpoint of $\overline{AC}$,

m (∠ C) = 30°

Prove that: Δ ABD is equilateral

(2) In the opposite figure:



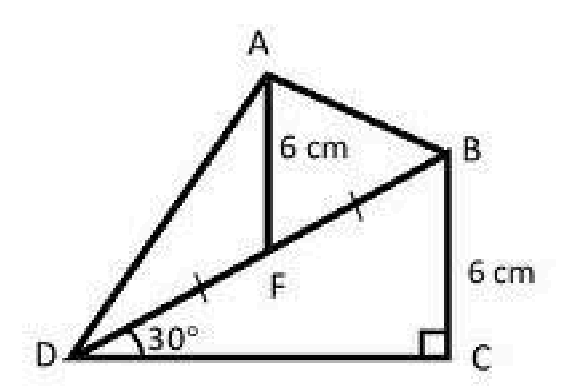
m (∠ DEF) = 90° ,

X and Y are the midpoints of $\overline{EF}$, $\overline{DF}$

respectively, m (∠ F) = 30°

DF = 12, XZ = 2.5 find the perimeter of Δ DEZ

(3) In the opposite figure:



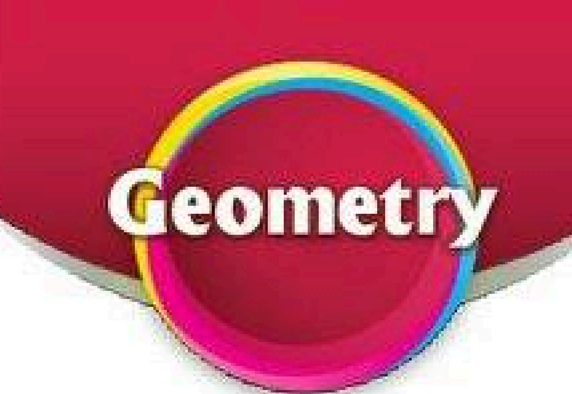
m (∠ C) = 90°, $\overline{AF}$ is a median of Δ ABD

, m (∠ BDC) = 30°

BC = AF = 6 cm

First: Find the length of $\overline{BD}$

Second: Prove that m (∠ BAD) = 90°



Second: Choose the correct answer from those given:

1) $\frac{3}{2}$ AM 2) 2 : 1 3) 4 cm 4) 3 cm

5) 120° 6) 65° 7) 100° 8) congruent

9) ⊥ 10) ≡ 11) rhombus 12) ⊥

Third:

(1) Proof: ∵ In Δ ABC

m (∠ C) = 30°, m (∠ ABC) = 90°, D is the midpoint of $\overline{AC}$

∴ $\overline{BD}$ is a median

∴ BD = $\frac{1}{2}$ AC (1)

∴ AB = $\frac{1}{2}$ AC (2)

∴ AB = BD = AD

∴ Δ ABD is equilateral

(2) Proof: ∵ In Δ DEF

X is midpoint of $\overline{EF}$

∴ $\overline{DX}$ is a median, XZ = 2.5

∴ DZ = 2 ZX = 5 cm (1)

, Y is midpoint of $\overline{FD}$

∴ $\overline{EY}$ is median

EY = $\frac{1}{2}$ DF = 6 cm

EZ = $\frac{2}{3}$ EY = $\frac{2 \times 6}{3}$ = 4 cm (2)

∵ m (∠ F) = 30°

∴ DE = $\frac{1}{2}$ FD = 6 cm (3)

P. of Δ DEZ = 6 + 4 + 5 = 15 cm